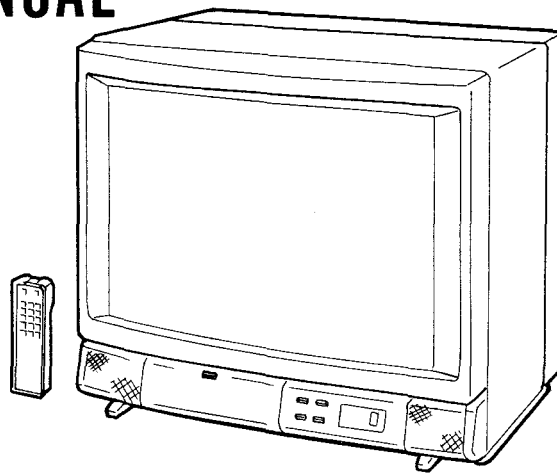


<sup>6261</sup>  
KV-20TS10  
RM-758

# SERVICE MANUAL

*US Model*  
Chassis No. SCC-A05Y-A



## P3A CHASSIS

**Note:** The service manual for RM-758 has been issued separately.

### MODELS OF THE SAME SERIES

KV-20TS30	KV-2094R/2095R
KV-20TR10	
KV-2040R	

### SPECIFICATIONS

Television system	American TV standards
Channel coverage	VHF: 2-13 UHF: 14-69 Cable TV: 1-125
Picture tube	Microblack Trinitron tube <b>20-inch picture measured diagonally</b> 21-inch picture tube measured diagonally
Power requirements	120 V AC, 60 Hz
Power consumption	130W (max.) 5W (in standby condition)
Accessories supplied	Remote Commander RM-758 with 2 size AA batteries Telescopic dipole antenna Antenna connector (300 ohms to 75 ohms matching transformer)
Optional accessories	U/V mixer EAC-66

Design and specifications subject to change without notice.



TRINITRON® COLOR TV  
**SONY®**

**KV-20TS10**  
RM-758


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### WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS. THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

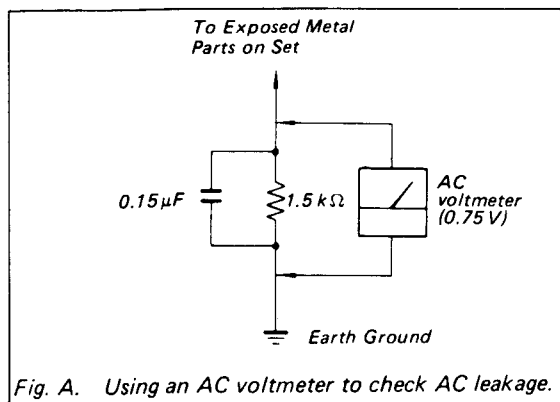
### SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK  ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).  
Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.



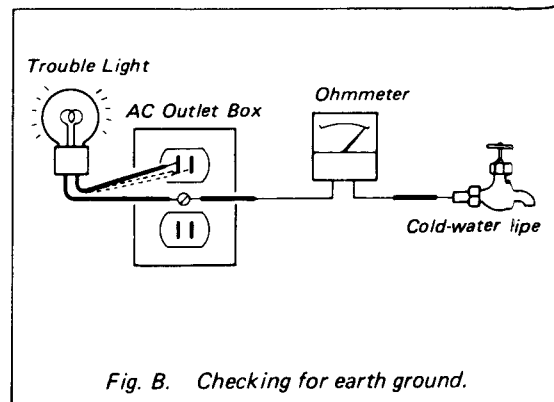
## LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

## HOW TO FIND A GOOD EARTH GROUND

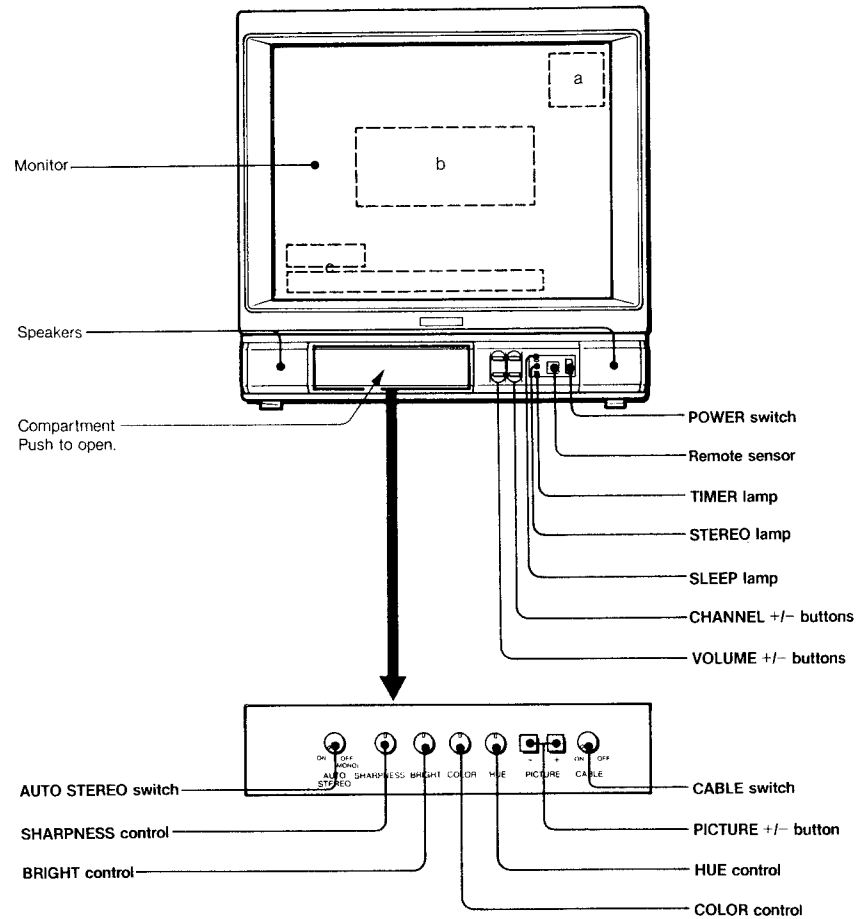
A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watt trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)



# SECTION 1 GENERAL

## 1-1. Location of Controls

Front



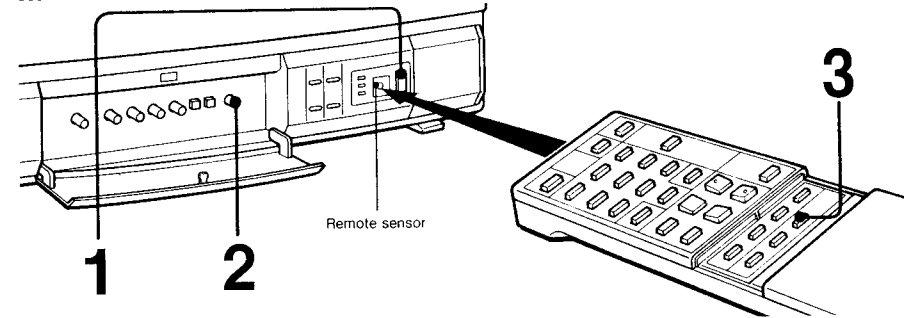
### On-screen displays

- a) • Channel numbers
  - MTS mode indication
  - "MUTING" or "SLEEP" mode indication
- b) "AUTO PROGRAM", "TIMER" or "TIMER BLOCK" indication
- c) Bar display for volume or picture adjustment
  - Current time for Timer/Block.

—4—

## 1-2. Presetting TV Channels

Use the Remote Commander.



**1** Turn the TV on.

**2** Set CABLE to the correct position.

**3** Press AUTO PROG.

"AUTO PROGRAM" is displayed on the screen and receivable channels (other than the channels already preset) will be preset in numerical sequence. The channels previously preset remain in the unit's memory.

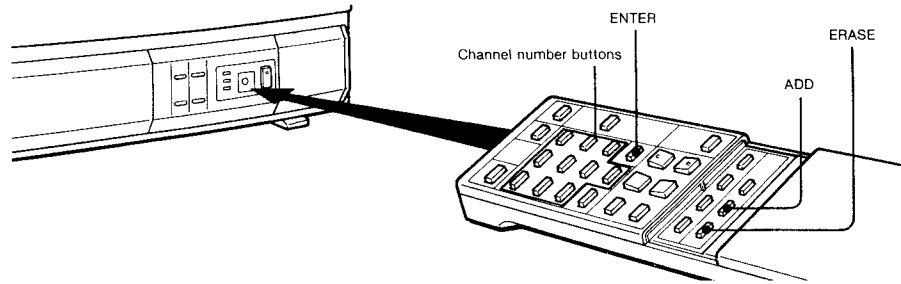
When no more channels can be found, the programming stops and the lowest numbered channel is displayed.

Receivable channels of this TV are:  
 VHF: 2-13  
 UHF: 14-69  
 Cable: 1-125

To check preset channels  
 Press CHANNEL +/-.

To add the channels that could not be preset with this automatic programming because their signal strength was too weak, or to erase unnecessary channels, follow the steps in "To preset only the desired channels" on the next page.

To preset only the desired channels  
—manual programming



**1** Press the channel number button(s) and then ENTER to select the channel to be added.

**2** Press ADD.

A "+" appears for a moment to the left of the on-screen channel number display. This channel has now been added to the channel scan memory.

**To add other channels**  
Repeat steps 1 to 2.

**To erase unnecessary channels**  
1 Select the channel to be erased.  
2 Press ERASE.  
A "-" appears for a moment to the left of the on-screen channel number display. This channel has now been erased from the channel scan memory.

Repeat steps 1 and 2 for other channels to be erased.

**When a VHF or UHF channel is erased**  
The cable TV channel with the same number is also erased and vice versa.

Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

**Cable TV channel chart\***

Cable TV systems use letters or numbers to designate channels. To tune in a channel, refer to the chart below.

Number on this TV	1	5	6	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Corresponding CATV channel	A-8	A-7	A-6	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q		
	31	32	33	34	35	36	37	38	39	93	94	95	96	97	98	99	100	101	102	123	124	125
	R	Q	T	U	Y	YY	W+1	W+2	W+3	W+57	W+58	A-5	A-4	A-3	A-2	A-1	W+58	W+60	W+61	W+62	W+63	W+64

Check with your local cable TV company for more complete information on the available channels.

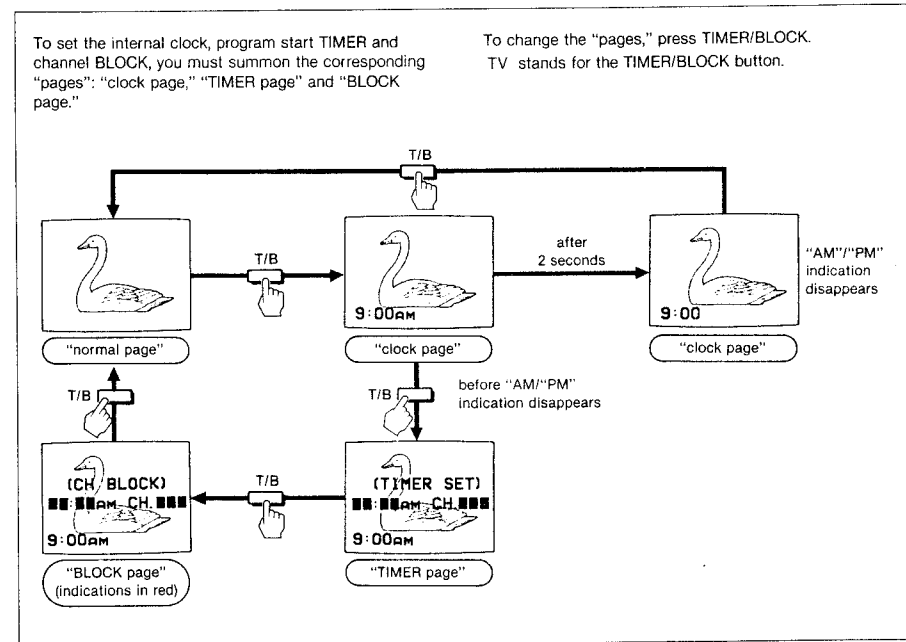
\* The designation of the cable TV channels conforms to the EIA/NCTA recommendation.

**1-3. Timer/Block**

**Available functions**

<b>Internal clock</b>	Once the internal clock is set, the current time will appear on the screen. It is necessary to set the clock correctly to activate the program start TIMER and channel BLOCK.
<b>Program start TIMER</b>	Makes a program of your choice appear on the screen automatically at the desired time.
<b>Channel BLOCK</b>	Blocks a channel from appearing on the screen for 12 hours. Use channel BLOCK to prevent children from watching undesirable programs.

The buttons used for the above functions are located on the Remote Commander.

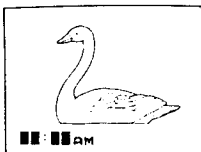


- All settings will be erased from the unit's memory if the unit is unplugged, or if a power failure occurs.
- The TIMER and BLOCK will operate only if the clock is set correctly.
- If the TIMER and BLOCK are set for overlapping times on the same channel, the blocked channel will appear on the screen at the time set on the TIMER.

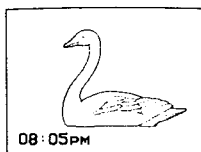
## How to Set the Internal Clock

Example: To set the clock to 8:05 PM

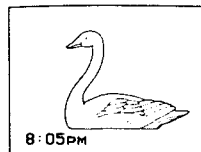
- 1 Press TIMER/BLOCK once to change from "normal page" to "clock page."



- 2 Press 0, 8, 0, 5, AM/PM (0 necessary).



- 3 If you have performed the operation correctly, press ENTER. The numbers will "wink" to indicate that the clock has been set. (The 0 in front will disappear.)



If you have made a mistake, press CLEAR and return to step 2.

The "AM/PM" indication will disappear after 2 seconds.

To summon "TIMER page," press TIMER/BLOCK before the "AM"/"PM" indication disappears.

To return to "normal page," press TIMER/BLOCK after the "AM"/"PM" indication has disappeared.

To reset the clock, summon "clock page" and press CLEAR before the "AM"/"PM" indication disappears. Then follow the steps above from step 2.

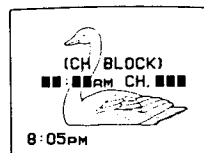
12:00 AM stands for midnight.  
12:00 PM stands for noon.

## How to Set the Channel BLOCK

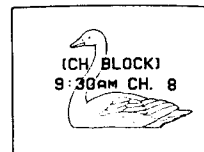
Make sure that the clock has been set correctly before setting the channel BLOCK.

Example: To set the BLOCK for a program which begins at 9:30 AM on channel 8

- 1 Press TIMER/BLOCK three times to change from "normal page" to "BLOCK page."



- 2 Press 0, 9, 3, 0, ENTER (0 necessary). Numbers will "wink" to indicate that the time has been set. Press 8, ENTER (0 not necessary). Numbers will "wink" to indicate that the channel has been set.



The BLOCK has now been set.

If you have made a mistake, press CLEAR and return to step 2.

At the preset time, the picture of the selected channel will be blocked from view and the sound will be muted. A red "BLOCKED" indication will appear on the screen while the channel is blocked.

Normal reception will be resumed after 12 hours.

To return to normal reception while the channel is blocked, recall "BLOCK page" and press CLEAR.

The BLOCK setting blocks a specified channel for the same 12-hour period everyday.

To clear BLOCK setting, summon "BLOCK page" and press CLEAR.

To reset, clear the setting and follow the steps above from step 2.

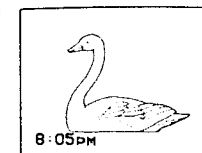
## Timer Block

### How to Set the Program Start TIMER

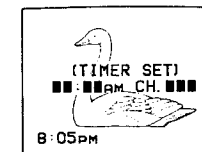
Make sure that the clock has been set correctly before setting the program start TIMER.

Example: To set the TIMER for a program which begins at 10:30 PM on channel 12

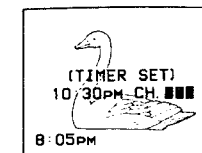
- 1 Press TIMER/BLOCK once to change from "normal page" to "clock page."



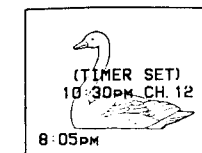
- 2 Press TIMER/BLOCK before the "AM"/"PM" indication disappears and summon "TIMER page."



- 3 Press 1, 0, 3, 0, AM/PM, ENTER. Numbers will "wink" to indicate that the time has been set.



- 4 Press 1, 2, ENTER (0 not necessary). Numbers will "wink" to indicate that the channel has been set.



The TIMER lamp will light up to indicate that the TIMER has been set.

If you have made a mistake, press CLEAR and return to step 3.

At the preset time, the selected channel will appear on the screen and the TIMER lamp will go out. The TIMER will operate whether you are watching a TV program or a VCR playback, or even if you have turned off the TV.

If no button is pressed within 2 hours after the preset time, an "OFF" indication will appear on the screen for 1 minute. If a button is still not touched during the 1 minute, the TV will turn off automatically as a safety precaution.

The TIMER operates only once, but the time and the channel will remain in the unit's memory.

If you want to preset the same channel at the same time for a future date, press TIMER OFF/REPEAT. The TIMER lamp will light up to indicate that the TIMER has been reactivated.

If you want to deactivate the TIMER, press TIMER OFF/REPEAT again so that the TIMER lamp goes out.

It is not necessary to summon "TIMER page" to use the TIMER OFF/REPEAT button. Furthermore, this button is effective even if the TV has been turned off.

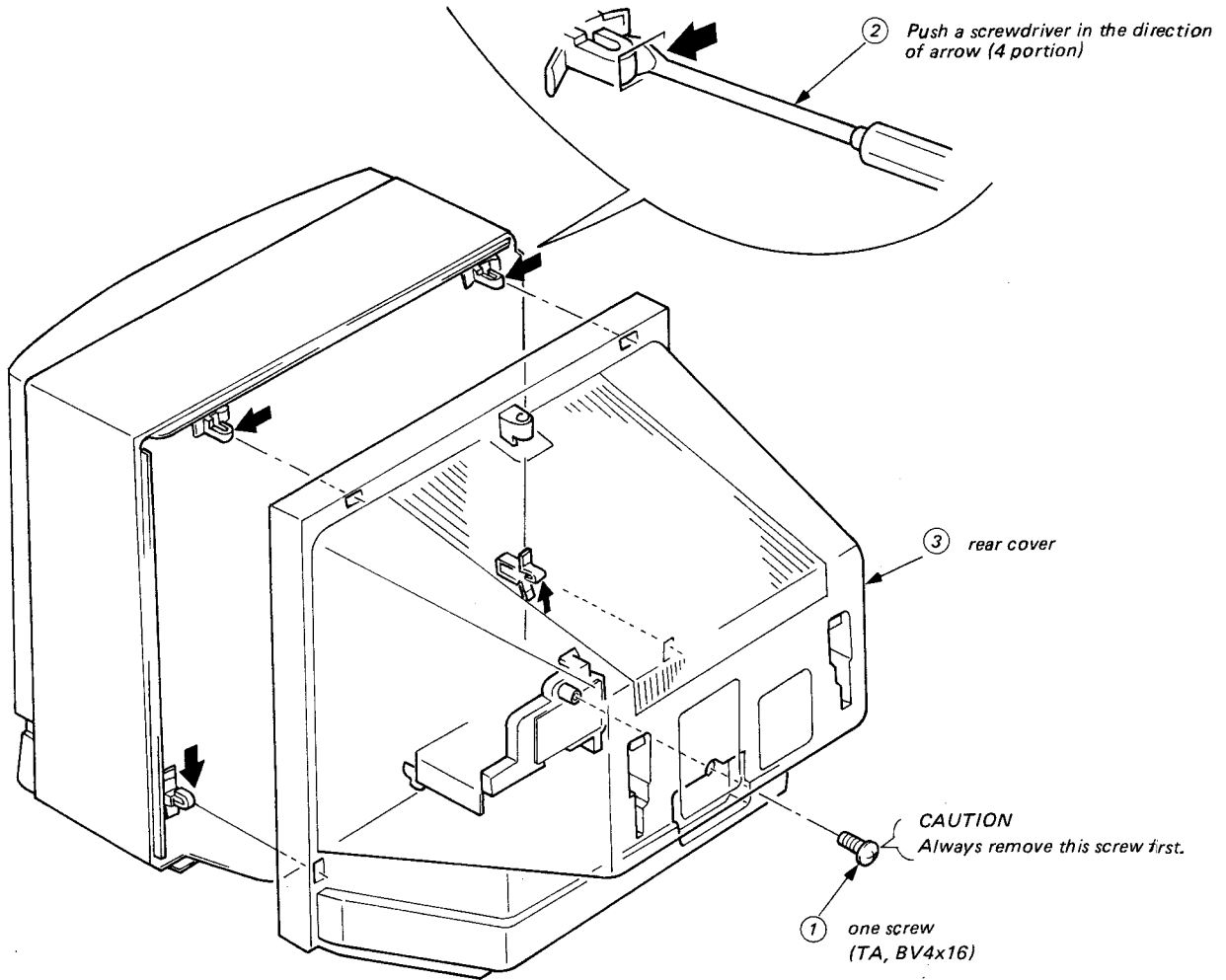
To clear the TIMER setting, summon "TIMER page" and press CLEAR.

To reset, clear the setting and follow the steps from step 3.

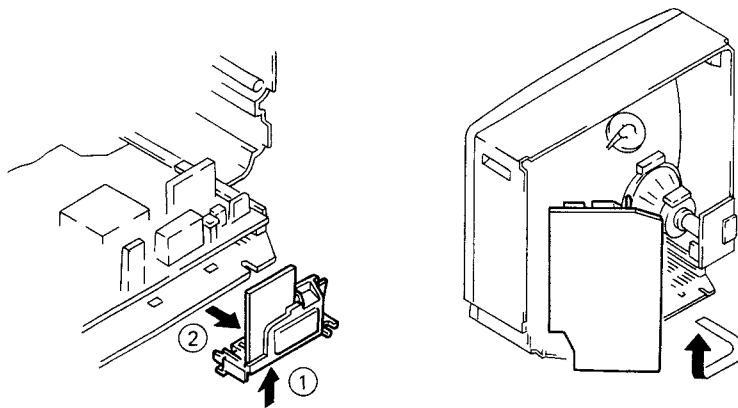
## SECTION 2 DISASSEMBLY

### 2-1. REAR COVER REMOVAL

Note: Follow the disassembly procedure in the numerical order given.



### SERVICE POSITION



**KV-20TS10**  
RM-758

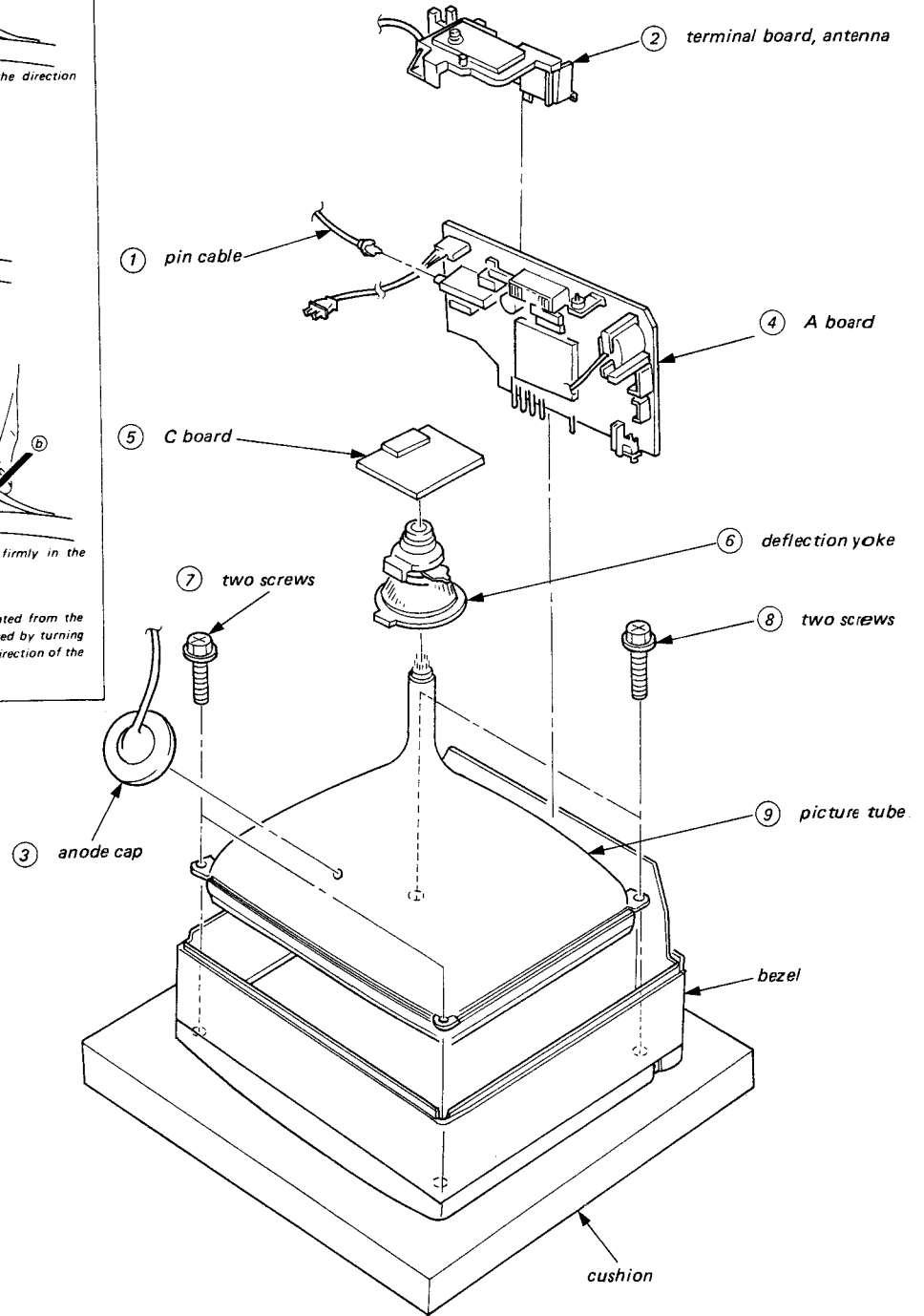
**2-2. PICTURE TUBE REMOVAL**

• **Removing Procedures**

① Turn up one side of the rubber cap in the direction indicated by the arrow ①.

② Using a thumb, pull up the rubber cap firmly in the direction indicated by the arrow ②.

③ When one side of the rubber cap is separated from the anode button, the anode cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ③.





## SECTION 3 SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switch should be set as follows unless otherwise noted:

PICTURE control ..... MAXIMUM

BRIGHTNESS control ..... MAXIMUM

Perform the adjustments in order as follows:

1. Beam Landing
2. Convergence
3. Focus
4. White Balance
5. Sub Brightness

**Note:** Test Equipment Required.

1. Color-bar/Pattern Generator
2. Degausser

### 3-1. BEAM LANDING

Preparation:

- Feed in the white pattern.
  - Before starting, degauss the entire screen.
1. Loosen deflection yoke screw.
  2. Adjust purity control as shown in Fig. 3-1.
  3. Slide deflection yoke as far forward as it will go.
  4. Turn the raster signal of the pattern generator to red.
  5. Adjust purity control to center vertical red band as shown in Fig. 3-2.
  6. Slide deflection yoke back for a uniform red screen.
  7. Check green and blue rasters for uniformity by performing the same way as steps 4, 5 and 6.
  8. Tighten the deflection yoke screw.
  9. Check if mislanding appears at corners a-d as shown in Fig. 3-3. If mislanding is observed, correct it as shown in Fig. 3-3.
  10. Confirm that beam landing is correct when the receiver is faced in all directions.

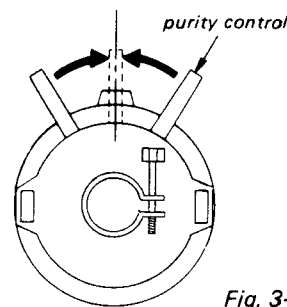


Fig. 3-1.

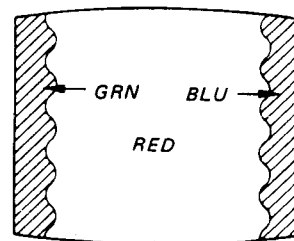


Fig. 3-2.

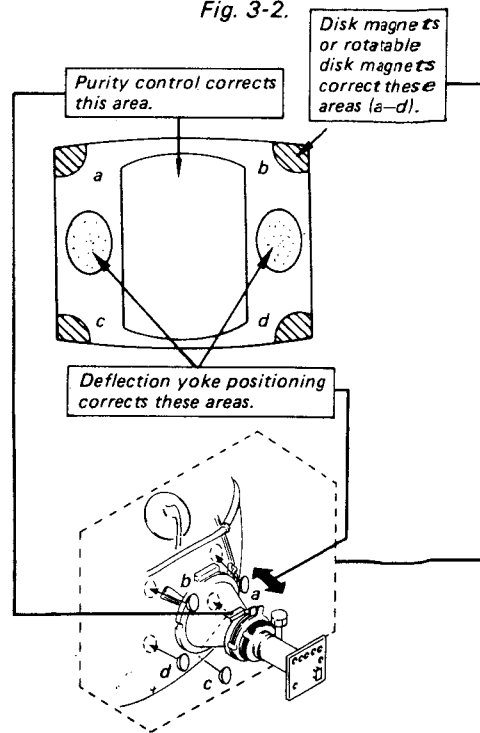
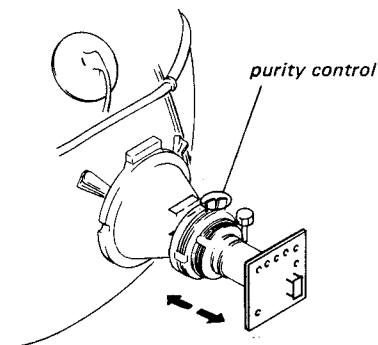


Fig. 3-3.

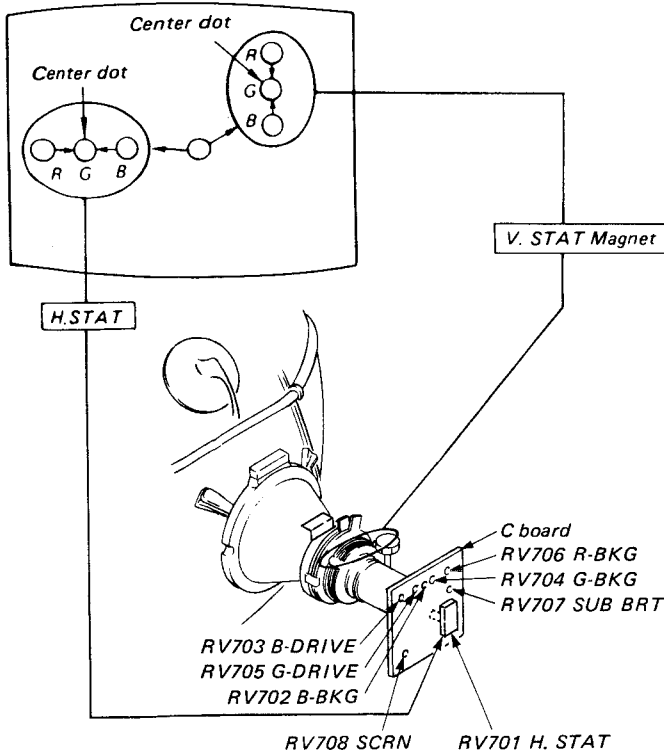
**KV-20TS10**  
RM-758

**3-2. CONVERGENCE**

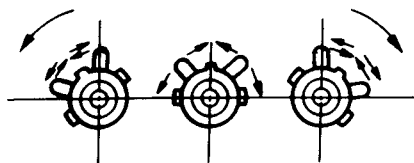
**Preparation:**

- Before starting, perform FOCUS, H. SIZE and V. SIZE adjustments.
- Set BRIGHTNESS control to fully counterclockwise.
- Feed in the dot pattern.

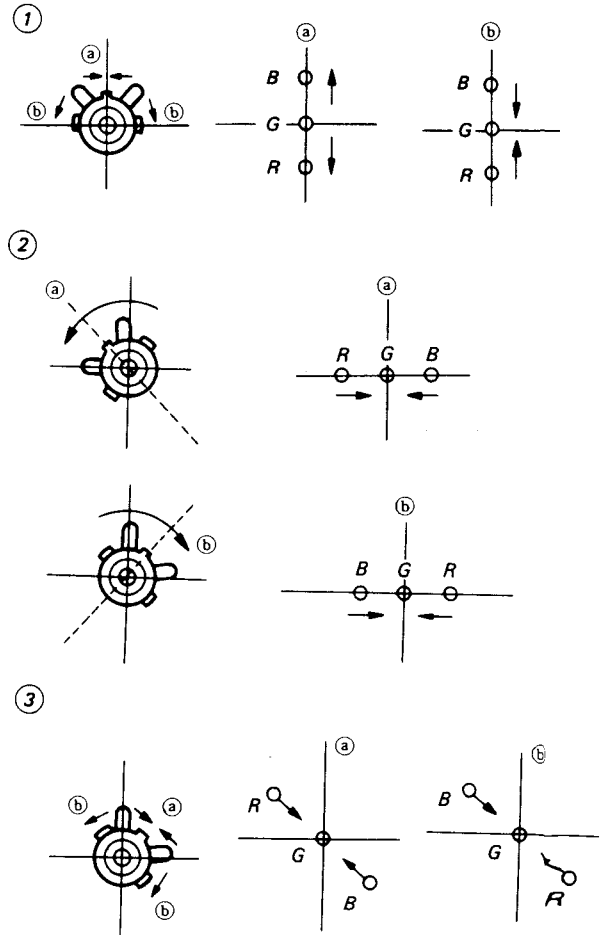
**(1) Horizontal and Vertical Static Convergence**



1. Adjust H. STAT VR to coincide red, green and blue dots on the center of screen (Horizontal movement)
  2. Adjust V. STAT magnet to coincide red, green and blue dots on the center of screen (Vertical movement)
  3. If the red, green and blue dots do not coincide on the center of screen with H. STAT VR, perform horizontal convergence adjustment using H. STAT VR and V. STAT magnet as shown below. (In this case, H. STAT VR and V. STAT magnet effect each other.)
- Tilt the V. STAT magnet and adjust static convergence to open or close the V. STAT magnet.



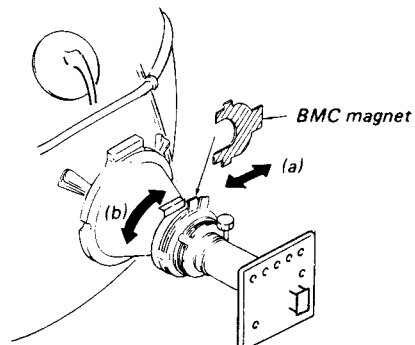
4. When the V. STAT magnet is moved in the direction of arrow (a) and (b), Red, Green and Blue dots move as shown below.



If blue dot does not coincide with red and green dots, perform following steps.

- Move BMC magnet (a) to correct insufficient H. static convergence.
- Rotate BMC magnet (b) to correct insufficient V. static convergence.

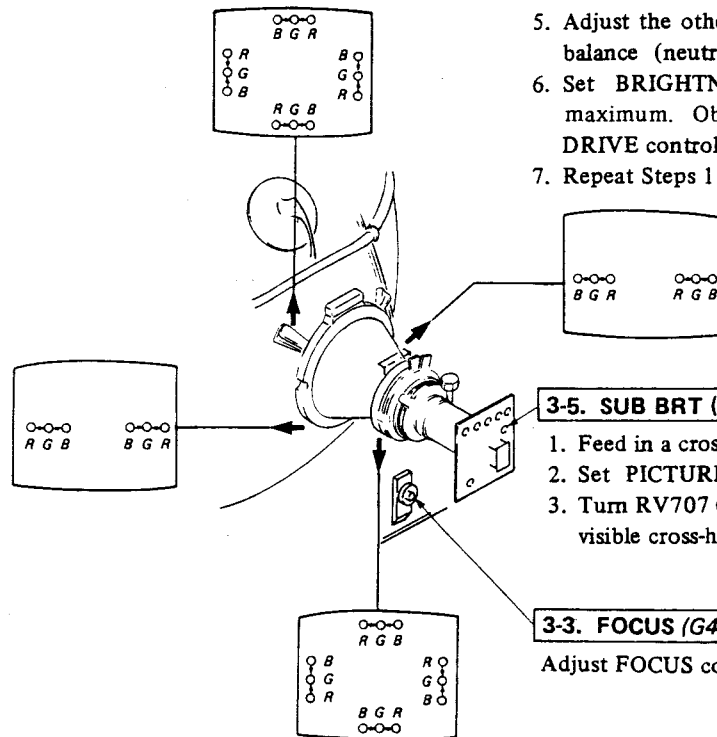
In either case, repeat Beam Landing Adjustment.



**(2) Dynamic Convergence Adjustment**

**Preparation:**

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.
- 1. Loosen deflection yoke screw.
- 2. Remove deflection yoke spacers.
- 3. Move the deflection yoke for best convergence as shown below.
- 4. Tighten the deflection yoke screw.
- 5. Install the deflection yoke spacers.



**3-4. WHITE BALANCE**

Feed in the cross-hatch pattern.

1. Set BRIGHTNESS and PICTURE controls to minimum.
2. Turn RV703 (B. DRIVE) and RV705 (G. DRIVE) fully counterclockwise.
3. Set RV706 (R. BKG), RV704 (G. BKG), RV702 (B. BKG) and RV707 (SUB BRT) to mechanical center.
4. Turn RV708 (SCREEN) slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning RV708. Do not turn a BKG control for this color.
5. Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch.
6. Set BRIGHTNESS and PICTURE controls to maximum. Observe the screen and adjust the DRIVE controls for best white balance.
7. Repeat Steps 1 through 6 several times.

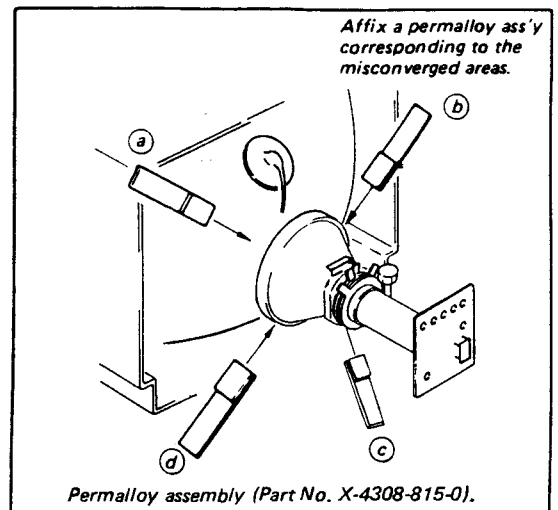
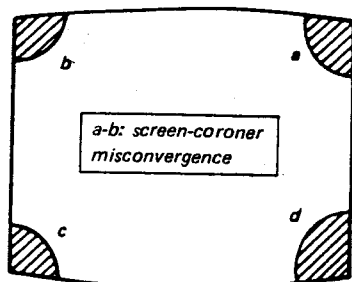
**3-5. SUB BRT (RV707)**

1. Feed in a cross-hatch pattern.
2. Set PICTURE and BRIGHTNESS to minimum.
3. Turn RV707 (SUB BRT) slowly to obtain a faintly visible cross-hatch.

**3-3. FOCUS (G4)**

Adjust FOCUS control for a best picture.

**(3) Screen-corner Convergence**



## SECTION 4

### SAFETY RELATED ADJUSTMENTS

#### R381 CONFIRMATION METHOD (HOLD-DOWN CONFIRMATION) AND READJUSTMENTS

The following adjustments should always be performed when replacing the following components (marked with  $\square$  on the schematic diagram).

IC301, PM501, R378, R379, R382, R512, R381

##### (1) Preparation before confirmation

1. Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHTNESS controls to maximum.
2. Confirm that the voltage of the TP-85 is more than 13 V dc when the set is operating normally with 120 V ac supply.

##### (2) Hold-down operation confirmation

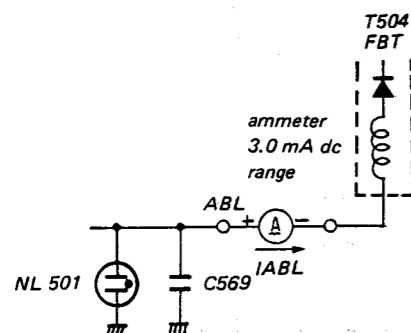
1. Turn the POWER switch ON, and receive entirely white signals and adjust ABL current to  $1400 \pm 20 \mu\text{A}$  with PICTURE and BRIGHT etc controls.
2. Apply DC voltage of over 13.0 V gradually to the TP85 via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 18.00 V dc whereby the raster disappears during operation of hold-down circuit.

Note: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

3. Turn the POWER switch ON, and receive dot signals and adjust ABL current to  $230 \pm 10 \mu\text{A}$  with PICTURE and BRIGHT etc controls.
  4. Apply DC voltage of over 13.0 V gradually to TP85 via 1T40 from the DC stabilized power source. Confirm that the minimum voltage is less than 19.34 V dc whereby the raster disappears during operation of hold-down circuit.
- Note: When the hold-down circuit starts operating, switch OFF the POWER of the set immediately.

##### (3) Hold-down readjustment

When step (2) is not satisfied, readjustment should be performed by altering the resistance value of R381 (a component marked with  $\square$ ).



\* Use a digital multimeter whose input impedance is over 100 M $\Omega$  when confirming the voltage of TP85.

#### CONFIRMATION WHEN REPLACING T504 (FLYBACK TRANSFORMER)

The following adjustments should always be performed with reference to whether an X-ray radiation control circuit is connected or not, when replacing T504 (FLYBACK TRANSFORMER).

\* This check is to be performed when T504 (FLYBACK TRANSFORMER) only is replaced, and has no relation to the hold-down circuit readjustment for replacement of parts marked  $\square$ .

##### (1) Connection confirmation

1. Turn the POWER switch ON, and receive entirely white signals and set the PICTURE and BRIGHTNESS controls to maximum.
2. When the set is operating normally with 120 V ac supply, confirm the voltage of the TP85 is over 13 V dc.

#### +B VOLTAGE CONFIRMATION

The following adjustments should always be performed when replacing IC601.

##### (1) The +B voltage confirmation

1. Supply  $130 \pm 1_0$  V ac to with variable auto-transformer.
2. Receive monoscope signals.
3. Set the PICTURE control in to 80% and BRIGHTNESS control in to DETENT.
4. Confirm the voltage of TP91 is less than 138.6 V dc.
5. If step 4 is not satisfied, replace IC601 and repeat above steps.

#### PICTURE BLANKING CONFIRMATION

The following adjustment should always be performed when replacing the following components (marked with  $\square$  on the components circuit).

Regrading components of  $\square$  R383.

R380, R341, D506, IC301, PM501, R383, R378, R379, R382

1. Turn the POWER switch ON, and receive monoscope signal.
2. Set the PICTURE control into 80% and BRIGHTNESS control into DETENT.
3. Confirm that the picture is blanked till the voltage of TP91 is more than 108.0 V DC.
4. Confirm that the picture is not blanked when INPUT voltage is more than 96 V AC.

#### V. SIZE CONFIRMATION

The following adjustments should always be performed when replacing the following components (marked with  $\square$  on the components circuit).

Regrading components of  $\square$  R555 (V. SIZE).

DY, IC301, R514, R515, R555, R556, T504, RV507.

1. Turn the POWER switch ON, and receive monoscope signal.
2. Set the PICTURE control in to 80% and the BRIGHTNESS control in to DETENT.
3. Adjust RV507 (V. SIZE) so that the V. SIZE becomes minimum, and confirm that the raster size is 22 cm or more.

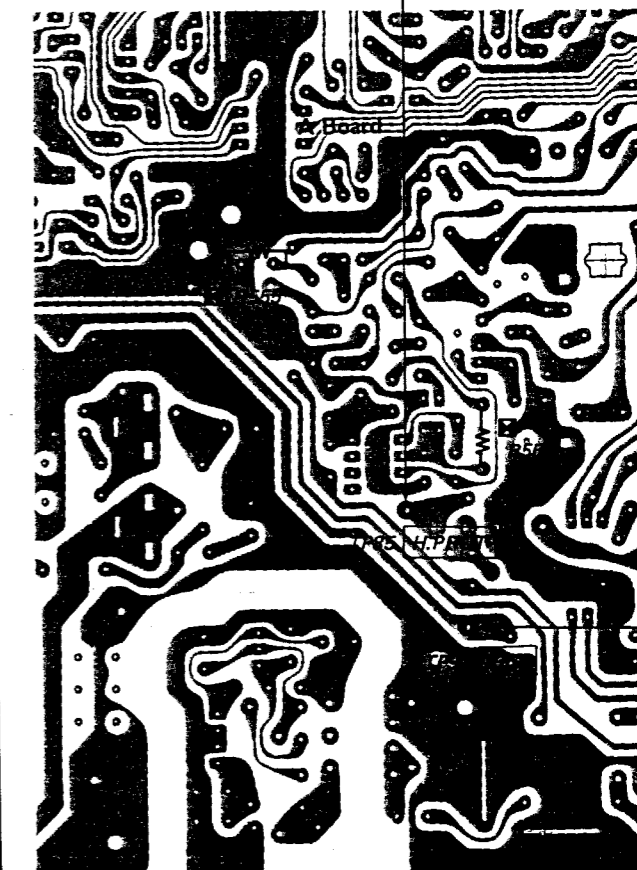
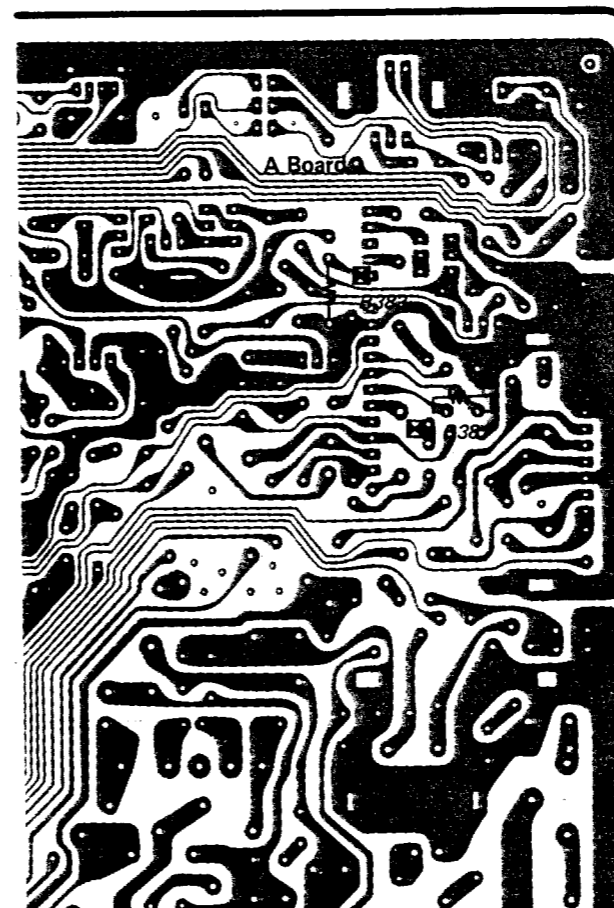
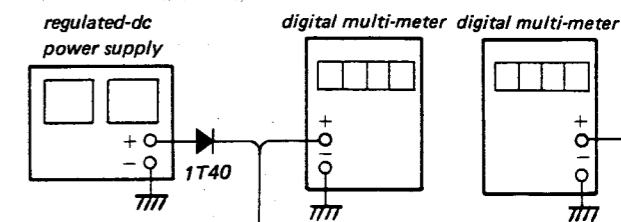
#### H. SIZE CONFIRMATION

The following adjustments should always be performed when replacing the following components (marked with  $\square$  on the components circuit).

Regrading components of  $\square$  R551 (H. SIZE).

C563, C565, DY, R551, R554, RV506, T504.

1. Turn the POWER switch ON, and receive monoscope signal.
2. Set the PICTURE control in to 80% and the BRIGHTNESS control in to DETENT.
3. Confirm that the H. SIZE at minimum should not exceed 16.4 frames by adjusting RV506 (H. SIZE).



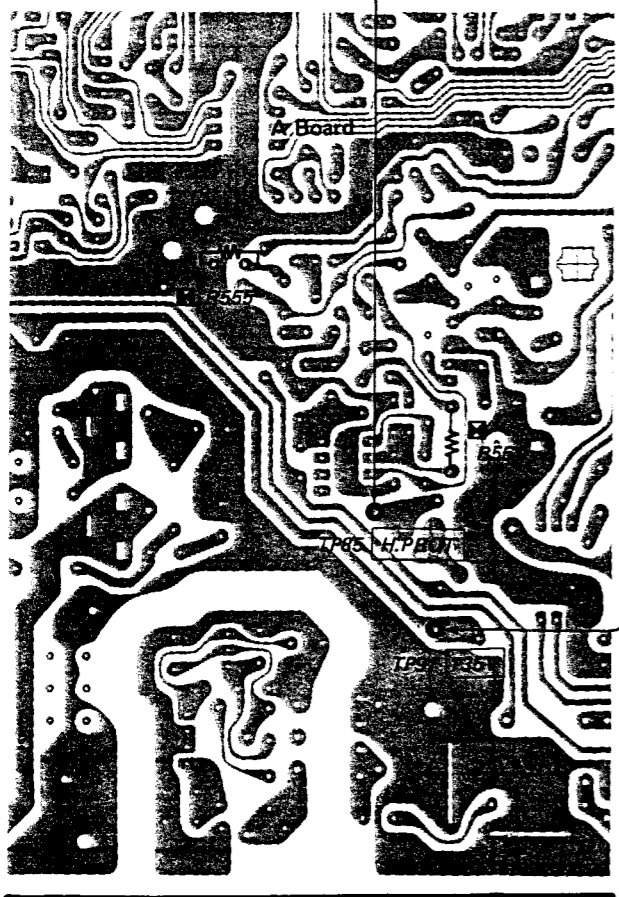
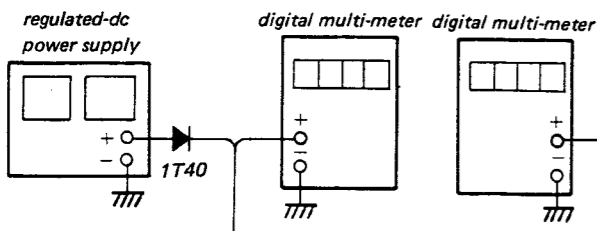
## SECTION 5 CIRCUIT ADJUSTMENTS

### H. SIZE CONFIRMATION

The following adjustments should always be performed when replacing the following components (marked with on the components circuit).

Regrading components of R551 (H. SIZE).  
C563, C565, DY, R551, R554, RV506, T504.

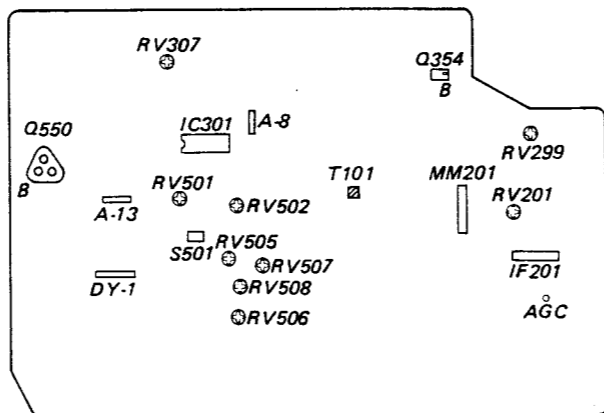
1. Turn the POWER switch ON, and receive monoscope signal.
2. Set the PICTURE control in to 80% and the BRIGHTNESS control in to DETENT.
3. Confirm that the H. SIZE at minimum should not exceed 16.4 frames by adjusting RV506 (H. SIZE).



### 5-1. A BOARD ADJUSTMENTS

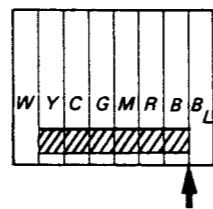
#### A BOARD

(COMPONENT SIDE)



#### BAR POSITION ADJUSTMENT (T101)

1. Receive a color-bar signal.
2. Set the PICTURE control to maximum.
3. Adjust T101 to the point where the arrow indicate.

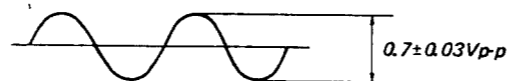


#### RF AGC ADJUSTMENT (IF201)

1. Receive an off-air signal.
2. Adjust AGC VR (AGC VR of IF201) so that snow noise and cross-modulation just disappear from the picture.

#### MPX LEVEL ADJUSTMENT (RV201)

1. Receive 400Hz (100% modulation) sound signal.
2. Connect an oscilloscope to PIN(2) of MM201.
3. Adjust RV201 so that the MPX level is  $0.7 \pm 0.03$  Vp-p.

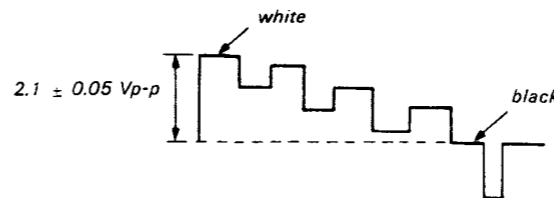


#### AUDIO BALANCE ADJUSTMENT (RV299)

1. Receive monoral signal.
2. Connect the dual-trace-oscilloscope at SP out Lch (A-6 connector) and Rch (A-17 connector).
3. Adjust RV299 so that Lch and Rch are same level.

#### SUB CONTRAST ADJUSTMENT (RV307)

1. Receive a color-bar signal.  
PICTURE ..... MAX  
BRT ..... CENTER  
COLOR ..... MIN
2. Short circuit between Base of Q354 and 9.3V Line with a jumper wire.
3. Draw A-8 - C-3 connector (C Board)
4. Connect an oscilloscope to the pin (4) of A-8 connector (blue out).
5. Adjust RV307 (SUB CONT) so that voltage is  $2.1 \pm 0.05$  Vp-p.

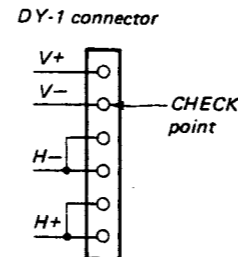


#### H. FREQ ADJUSTMENT (RV501)

1. Receive an off air signal.
2. Short circuit between pin (48) of IC301 (H IN) and pin (36) of IC301 (VCC 2) with a jumper wire.
3. Connect the frequency counter across Base of Q550 and ground.
4. Adjust RV501 for 15,734 kHz  $\pm 50$  Hz on the frequency counter.
5. Disconnect a jumper wire from IC301.

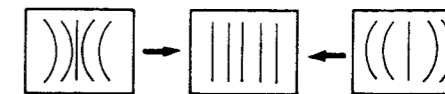
#### V. FREQ ADJUSTMENT (RV502)

1. Receive an off air signal.
2. Short circuit between pin (47) of IC301 (V IN) and pin (36) of IC301 (VCC 2) with a jumper wire.
3. Connect the frequency counter across DY-1 connector (V. DY (-)) and ground.
4. Adjust RV502 for 55.0  $\pm 0.3$  Hz on the frequency counter.
5. Disconnect a jumper wire from IC301.



#### PIN AMP ADJUSTMENT (RV505)

Adjust pin amplification with RV505



#### H. CENT, H. SIZE, ADJUSTMENT (A-13, RV506)

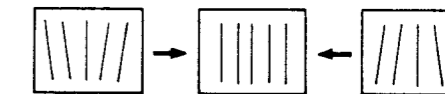
1. Receive a cross-hatch signal.
2. Set PICTURE and BRT to normal.  
Adjust H. CENT (H. CENT TAP = A-13), H. SIZE (RV506) for best picture.

#### V. CENT, V. SIZE ADJUSTMENT (S501, RV507)

1. Receive a cross-hatch signal.
2. Set PICTURE and BRT to normal.
3. Adjust V. CENT (S501) and V. SIZE (RV507) for best picture.

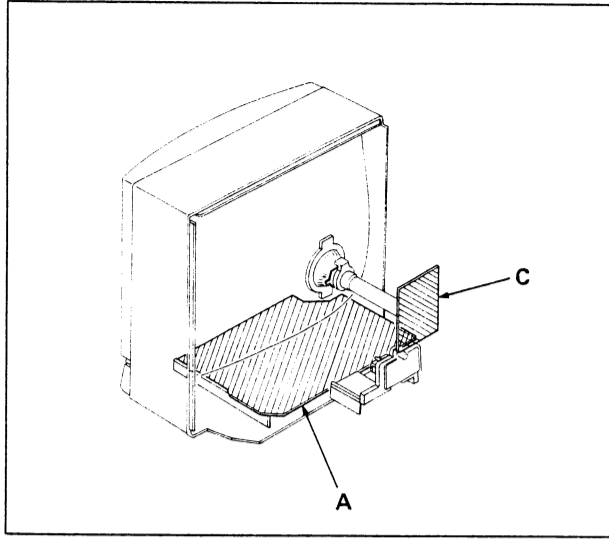
#### PIN PHASE ADJUSTMENT (RV508)

Adjust pin phase with RV508.



## SECTION 6 DIAGRAMS

### 6-1. CIRCUIT BOARDS LOCATION



### 6-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

**Note:**

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics
- All resistors are in ohms.  
k $\Omega$  = 1000 $\Omega$ , M $\Omega$  = 1000k $\Omega$
- Indication of resistance, which does not have one for rating electrical power is as follows.

Pitch: 5mm  
Rating electrical power: 1/4W

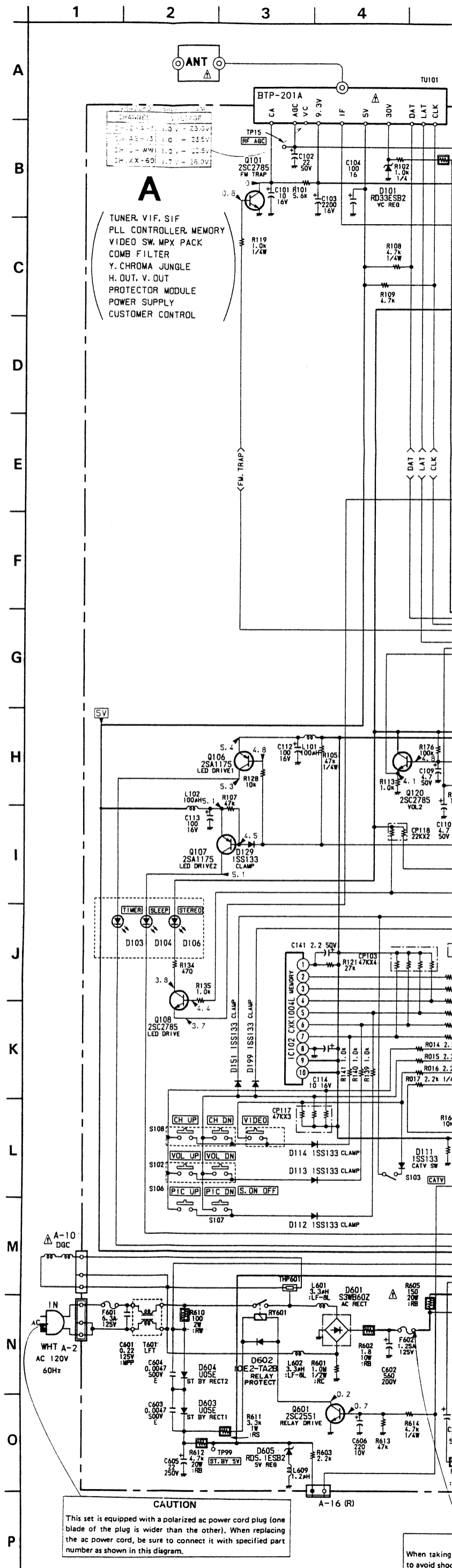
- : nonflammable resistor.
- : internal component.
- : panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by and repeat the adjustment until the specified value is achieved. (Refer to R381, R383, R551 and R555 adjustments on page 12, 13.)
- When replacing the part in below table, be sure to perform the related adjustment.

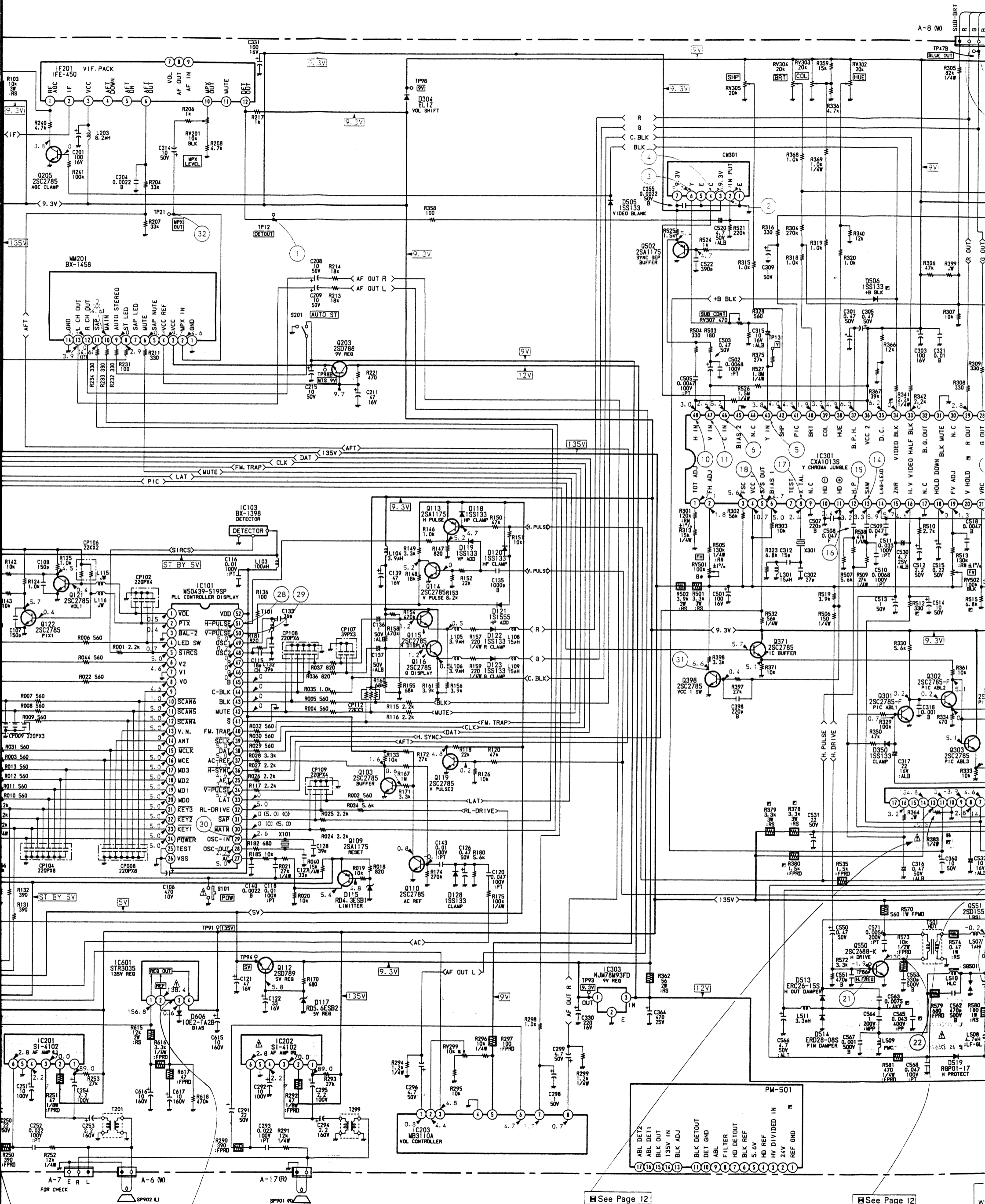
Adjustment (  )	Part replaced (  )
R381	IC301, PM501, R378, R379, R381, R382, R512
R383	IC301, D506, PM501, R341, R378, R379, R380, R382, R383
R551	C563, C565, DY, R551, R554, RV506, T504
R555	R514, R515, R555, R556, T504, RV507, DY, IC301

**Reference information**

- RESISTOR : RN METAL FILM  
 : RC SOLID  
 : FPRD NONFLAMMABLE CARBON  
 : FUSE NONFLAMMABLE FUSIBLE  
 : FPMD NONFLAMMABLE WIREWOUND (OLD TYPE)  
 : RS NONFLAMMABLE WIREWOUND (NEW TYPE)  
 : RB NONFLAMMABLE CEMENT  
 : \*ADJUSTMENT RESISTER
- COIL : LF-BL MICRO INDUCTOR
- CAPACITOR : TA TANTALUM  
 : PS STYROL  
 : PP POLYPROPYLENE  
 : PT MYLAR  
 : MPS METALIZED POLYESTER  
 : MPP METALIZED POLYPROPYLENE  
 : ALB BIPOLAR  
 : ALT HIGH TEMPERATURE  
 : AIR HIGH RIPPLE

- Voltages are dc with respect to ground unless otherwise noted.
  - Readings are taken with a 10M $\Omega$  digital multimeter.
  - : adjustment for repair.
  - Readings are taken with color-bar signal input.
- MODE (AUDIO)  
 No mark : BOTH  
 ( ) : MAIN  
 < > : SUB
- Voltage variations may be noted due to normal production tolerances.
  - : B+ bus.
  - : signal path



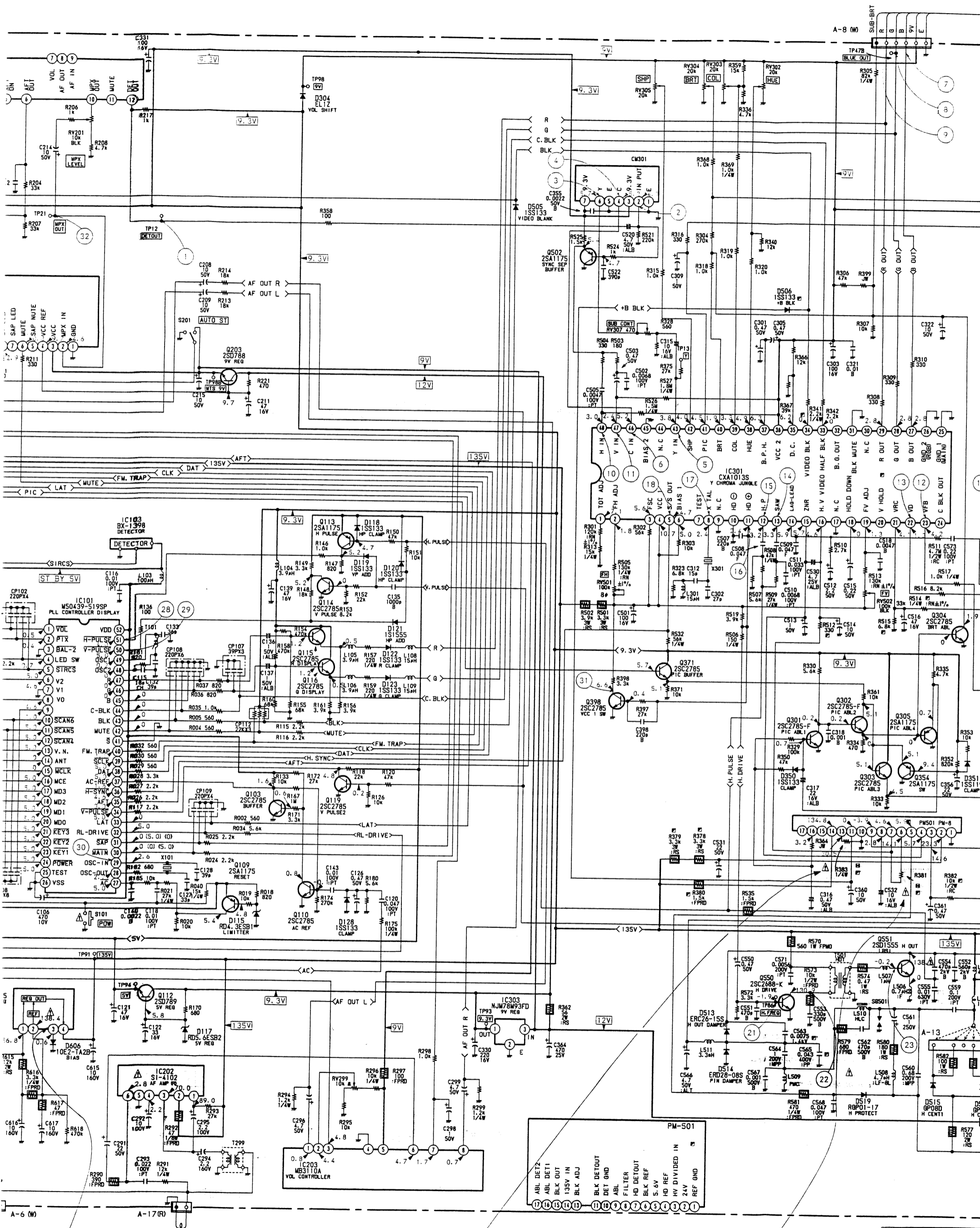


**CAUTION**  
If a broken fuse (F602) is off, discharge across C602 to avoid shock hazard.

**CAUTION**  
When replacing IC601, be sure to check the test point voltage value (TP91). Refer to the Safety Adjustment Section.

See Page 12

See Page 12



**CAUTION**  
When replacing IC601, be sure to check the test point voltage value (TP91). Refer to the Safety Adjustment Section.

See Page 12

See Page 12

When replacing FBT (T504), be voltage value. Refer to the Safety

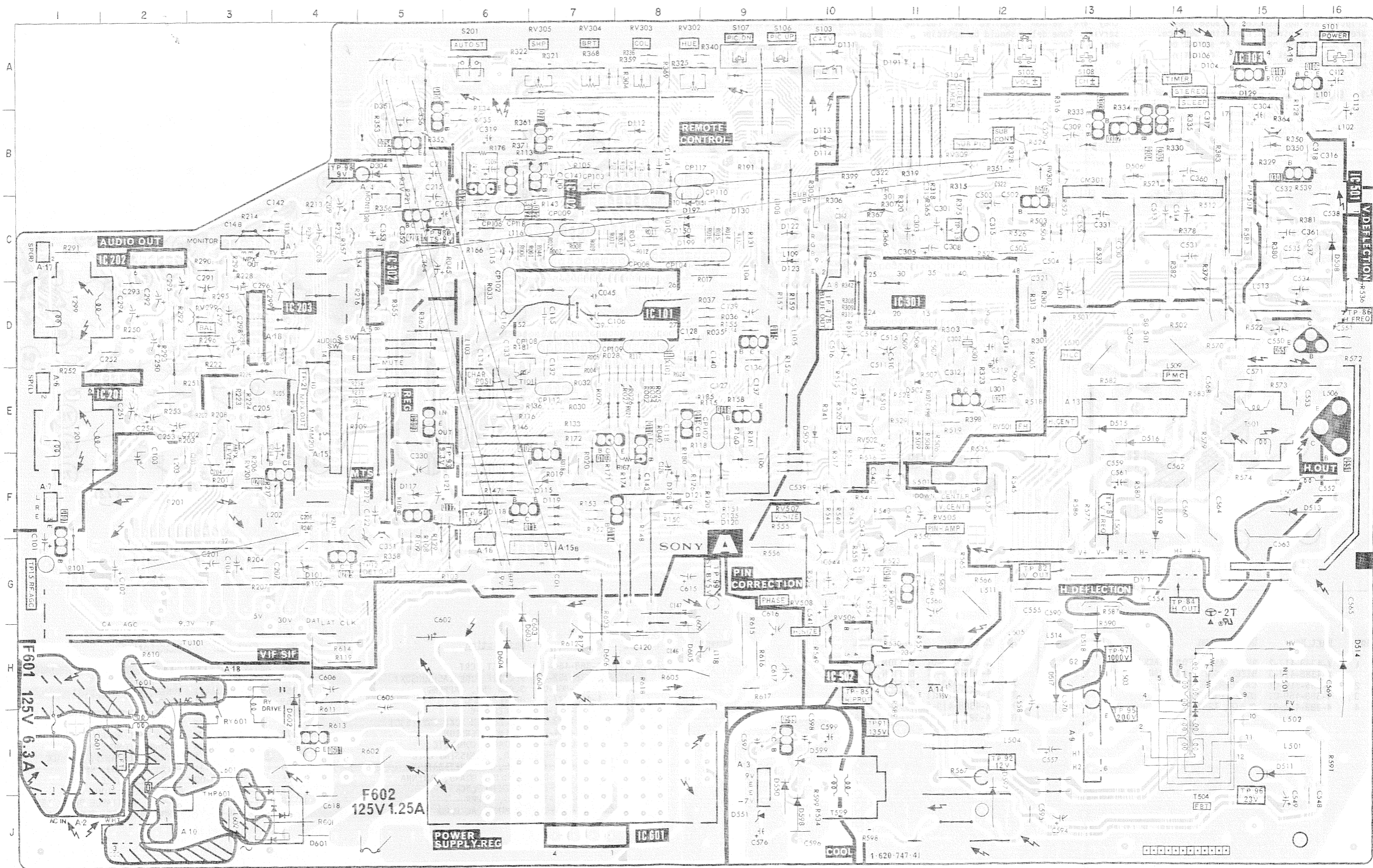




KV-20TS10 RM-758 KV-20TS10 RM-758

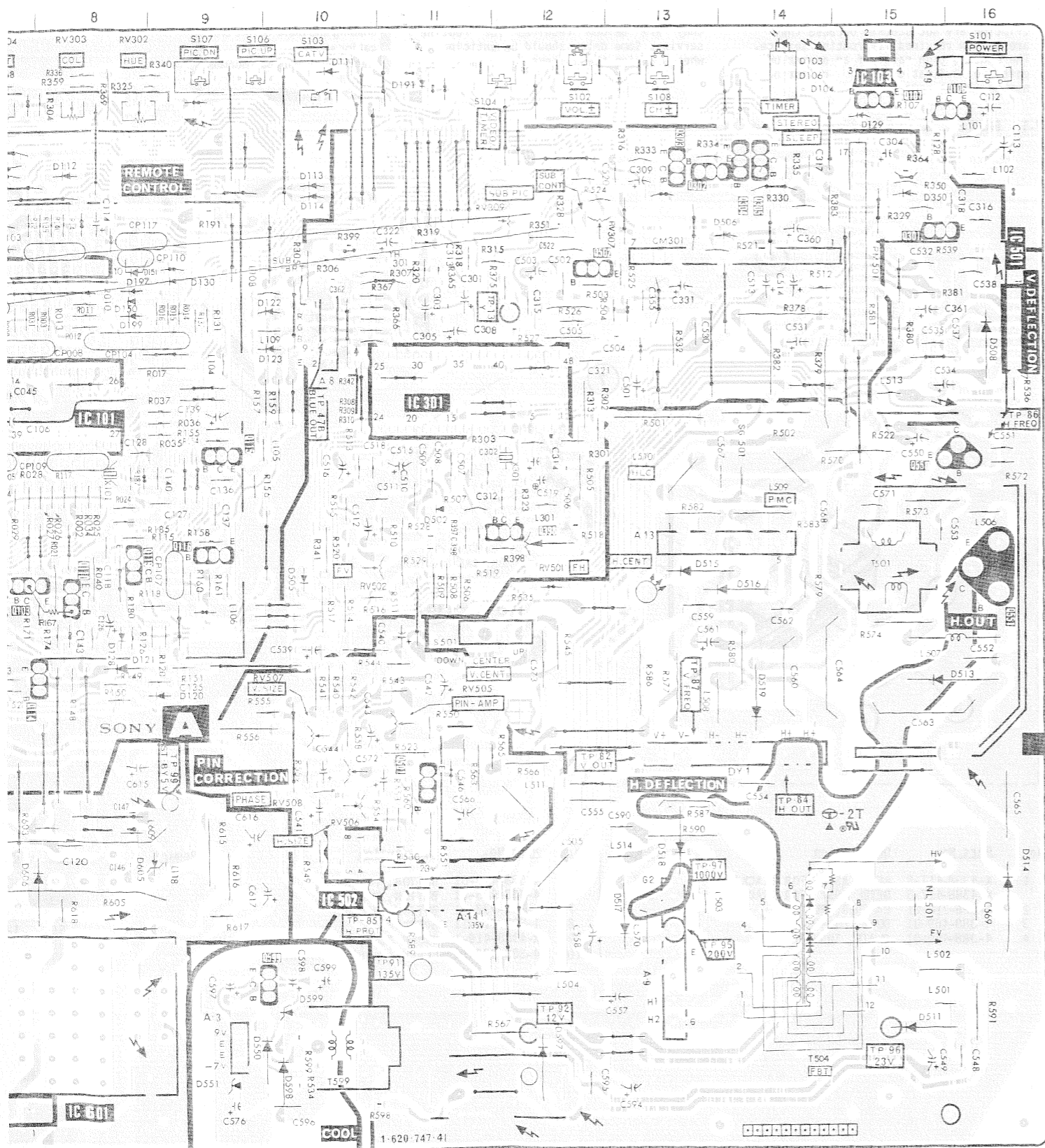
A TUNER, VIF, SIF, PLL, CONTROLLER, MEMORY, AF AMP, VIDEO SW, COMB FILTER, Y.CROMA, JUNGLE, H.OUT, V.OUT, POWER SUPPLY, CUSTOMER CONTROL

- Conductor Side -  
- A Board -



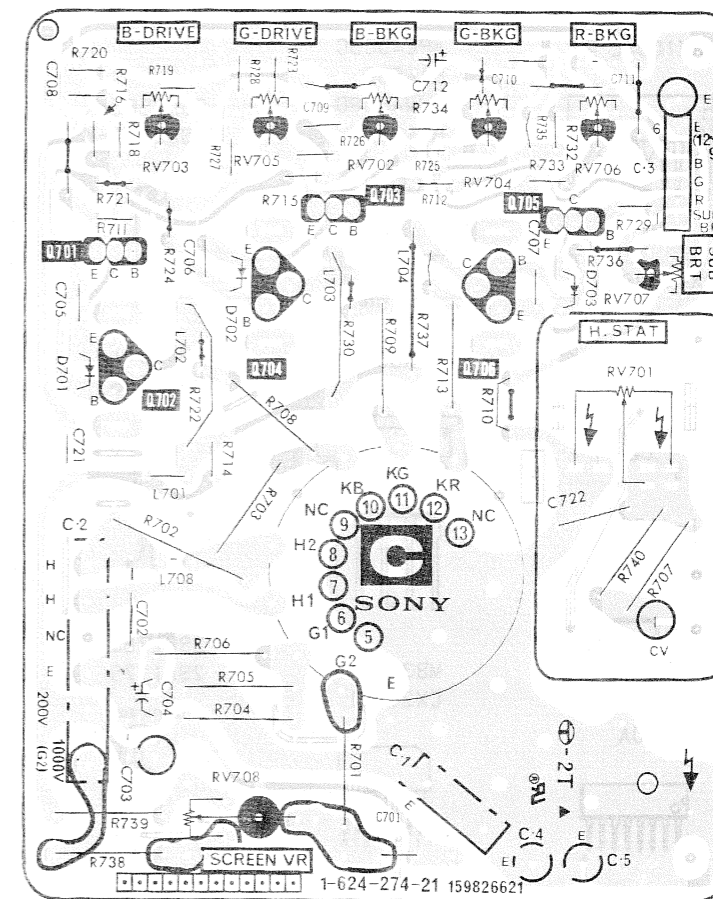
**C** (R,G,B OUT)

- C Board -



A BOARD

DIODE		TRANSISTOR	
D101	G-4	Q101	F-1
D103	A-14	Q103	F-7
D104	A-14	Q106	A-16
D106	A-14	Q107	A-15
D111	A-10	Q109	E-6
D112	B-8	Q110	E-8
D113	B-10	Q112	F-6
D114	B-10	Q113	F-6
D115	F-7	Q114	F-7
D117	F-5	Q115	D-9
D118	F-6	Q116	E-9
D119	F-7	Q119	E-8
D120	F-9	Q120	C-6
D121	F-8	Q121	C-6
D122	C-10	Q122	C-7
D123	C-10	Q203	C-5
D128	F-8	Q205	G-4
D129	A-15	Q301	B-15
D191	A-11	Q302	B-13
D304	B-5	Q304	B-14
D350	B-15	Q305	B-14
D351	A-5	Q354	B-5
D505	E-10	Q371	B-7
D506	B-13	Q398	E-12
D508	C-16	Q501	G-11
D511	I-15	Q502	C-12
D513	F-16	Q550	D-15
D514	H-16	Q551	F-16
D515	E-13	Q601	I-4
D516	E-14		
D517	H-13	RV	
D518	H-13		
D519	F-14		
D597	I-12	RV201	F-3
D601	J-4	RV299	D-3
D602	I-4	RV302	A-8
D603	H-6	RV303	A-8
D604	H-6	RV304	A-7
D605	H-8	RV305	A-7
D606	H-7	RV307	B-12
IC		RV501	E-12
		RV502	E-11
		RV505	F-11
IC101	D-8	RV506	G-10
IC102	C-7	RV507	F-9
IC103	A-15	RV508	G-10
IC201	E-2		
IC202	C-2		
IC203	D-3		
IC301	D-11		
IC303	E-5		
IC501	C-16		
IC502	H-10		
IC601	J-8		



**NOTE:**  
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

**6-3. SEMICONDUCTORS**

M50439-519SP 	#PC1378H-P 	2SD789 2SD788 	2SC1740SR 2SA933S-Q 2SA933S-R 2SC2551 	S3WB60Z 
CXK1004L 	#PC4558C BA4558 NJM4558D HA17558 	2SD1585-K 2SC3851-Y 	RD10E8-B2 RD33ES-B2 1SS133 1SS148 1SS119 RD4.3ES-B1 RD5.6ES-B2 RD5.1ES-B2 	ERB43-08 ERB43-04 
BX-1398 	STR3035 	2SC2611 2SC2688 	ERC06-15C ERD28-08S 1S1555 EL1Z 10E2 RGP01-17PKG23 ES1F 	
S1-4102 	MB3110A CX20061 	2SC2785 2SA1175 		
MB3110A 	2SK105A-30 	DTC144ES 2SC1740SS 2SC2458 2SC2603 2SA1048 2SA1115 	GP08DPKG23 #05E #05G V19E V19G 	
CXA1013S 	NJM78M93FD 			
	2SD1555-LB-S1 			

**SECTION 7**  
**EXPLODED VIEWS**

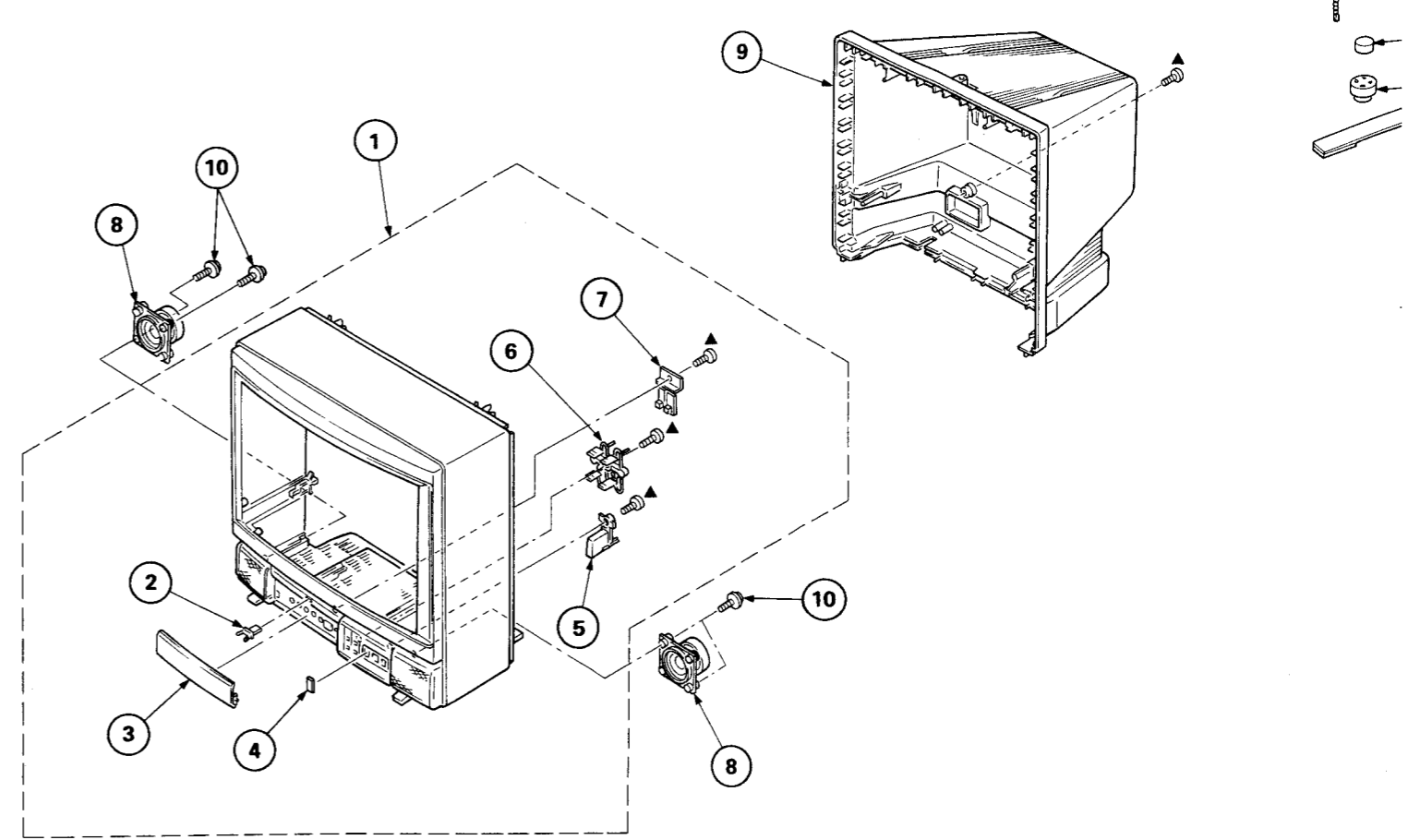
**7-2. PIC**

**NOTE:**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  $\Delta$  are critical for safety. Replace only with part number specified.

**7-1. BEZEL  $\Delta$  ; TA, BV4x16 7-685-663-79**



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark	No.	Par
1	X-4388-417-2	BEZEL ASSY (FOR BLACK)	2-7	5	4-388-460-01	BUTTON, POWER		51	4-3
	X-4388-417-3	BEZEL ASSY (FOR TRAD OAK)	2-7	6	4-388-465-01	BUTTON, MULTI		53	$\Delta$ 8-7
2	4-386-710-01	CATCHER, PUSH		7	4-341-738-01	BUTTON, PICTURE		54	4-3
3	4-388-469-01	DOOR, CONTROL		8	1-503-918-11	SPEAKER		55	1-4
4	4-388-459-01	PLATE, TRANSPARENT		9	X-4388-419-1	COVER ASSY, REAR		56	3-7
				10	4-388-477-01	SCREW (3x16), TAPPING		57	$\Delta$ 1-4
								58	*4-3
								59	*A-1
								60	*4-3
								61	$\Delta$ 1-4
								62	4-3
								63	$\Delta$ 1-5
								64	$\Delta$ 1-5
								65	$\Delta$ 4-3

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**SECTION 7**  
**EXPLODED VIEWS**

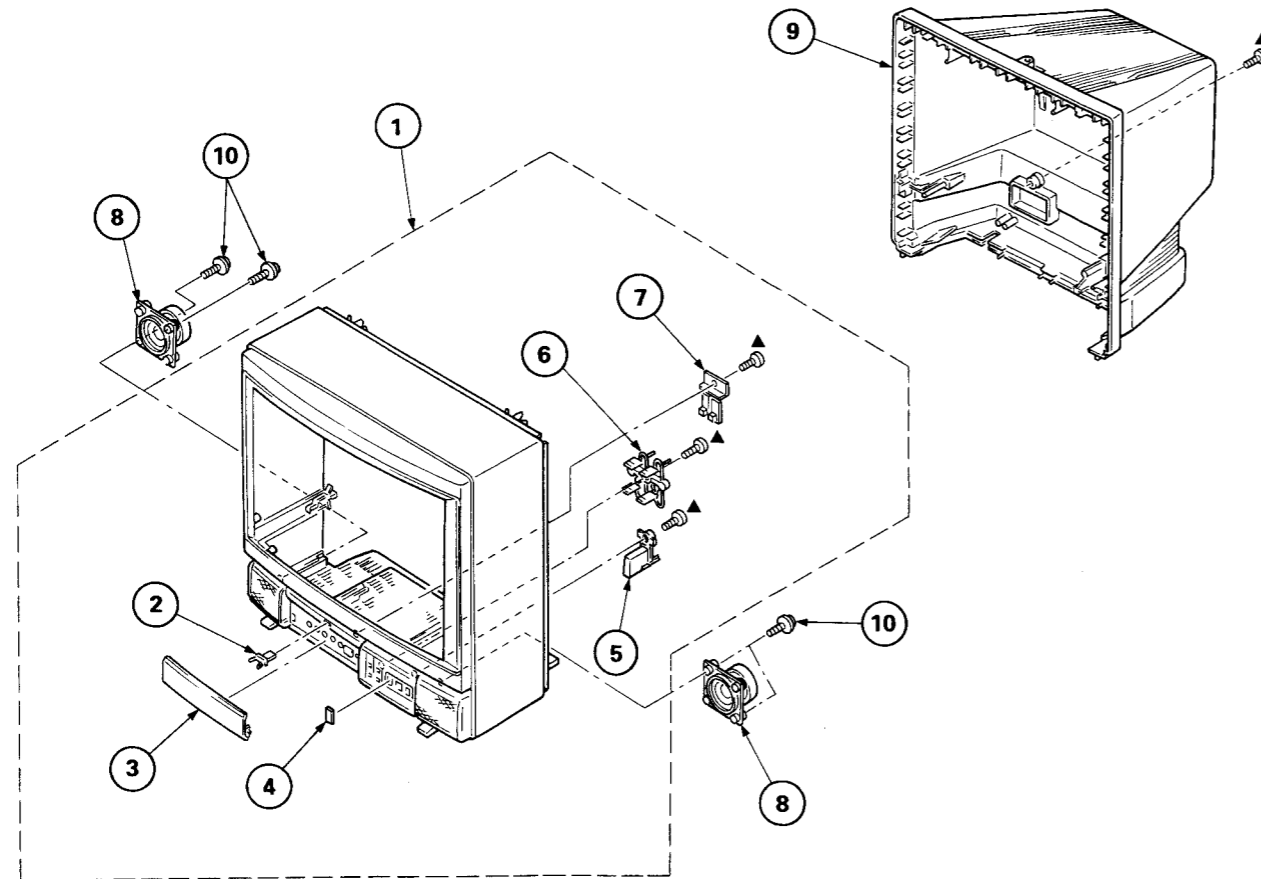
**NOTE:**

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark **▲** are critical for safety. Replace only with part number specified.

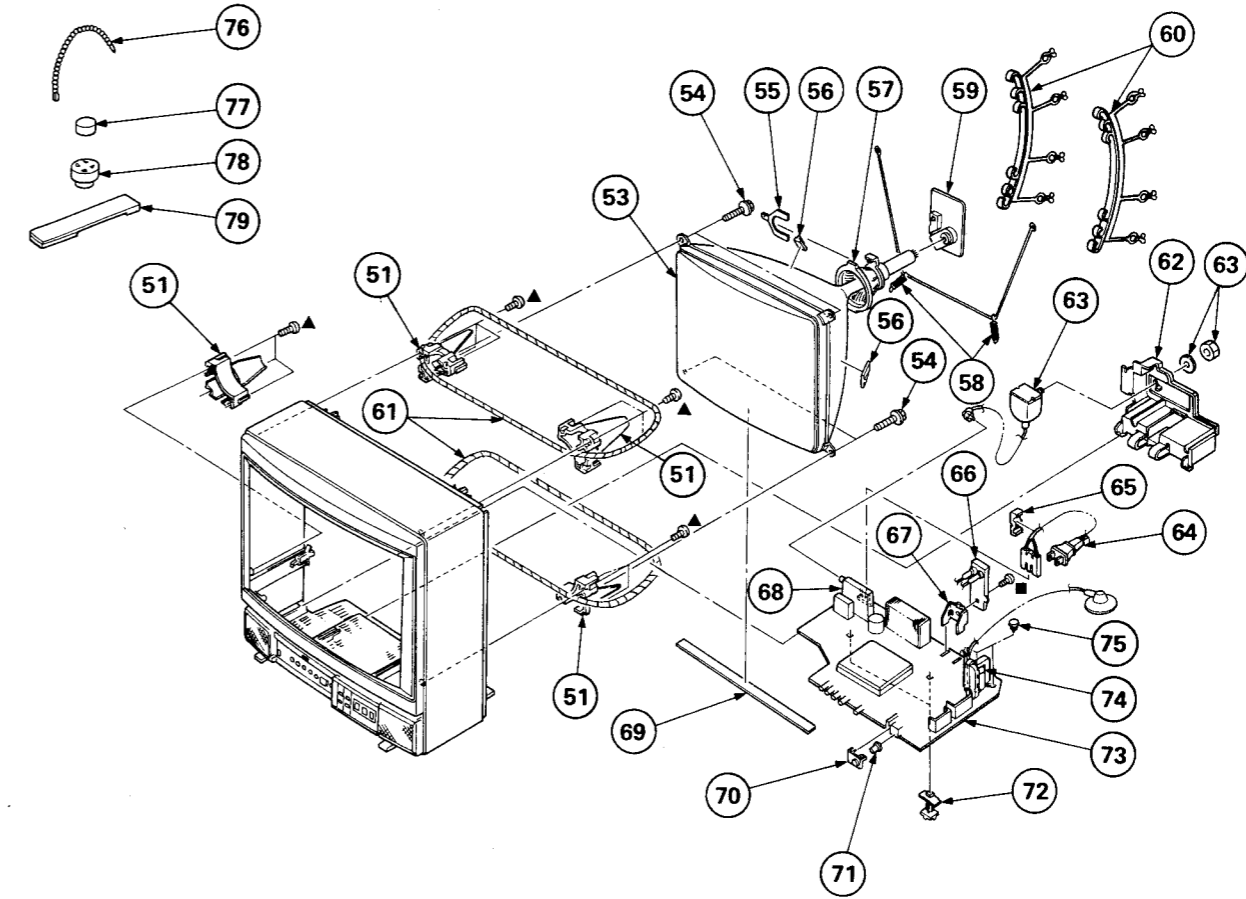
**7-1. BEZEL ▲ ;TA, BV4x16 7-685-663-79**



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	X-4388-417-2	BEZEL ASSY (FOR BLACK)	2-7	5	4-388-460-01	BUTTON, POWER	
	X-4388-417-3	BEZEL ASSY (FOR TRAD OAK)	2-7	6	4-388-465-01	BUTTON, MULTI	
2	4-386-710-01	CATCHER, PUSH		7	4-341-738-01	BUTTON, PICTURE	
3	4-388-469-01	DOOR, CONTROL		8	1-503-918-11	SPEAKER	
4	4-388-459-01	PLATE, TRANSPARENT		9	X-4388-419-1	COVER ASSY, REAR	
				10	4-388-477-01	SCREW (3x16), TAPPING	

**7-2. PICTURE TUBE ■ ;TA, BV3x8 7-685-646-79**  
**▲ ;TA, BV4x16 7-685-663-79**

The components identified by shading and mark **▲** are critical for safety. Replace only with part number specified.



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	4-388-464-01	BRACKET, CRT		66	▲1-238-043-11	RESISTOR ASSY, HIGH-VOLTAGE	
53	▲8-738-752-05	PICTURE TUBE (A51JUH50X)		67	*4-341-736-01	BRACKET, FOCUS VR	
54	4-365-808-00	SCREW (5), TAPPING		68	▲1-463-771-11	TUNER, ET (BTP-201A)	
55	1-452-277-00	MAGNET, BMC		69	4-385-725-01	CLOTH	
56	3-703-961-01	SPACER, DY		70	*4-381-686-01	BRACKET (B), BAR, OPTICAL	
57	▲1-451-268-11	DEFLECTION YOKE (SY-153C)		71	*4-374-987-01	GUIDE, LIGHT	
58	*4-375-394-01	SPRING, TENSION		72	*4-376-053-01	ANCHOR, PC BOARD	
59	*A-1330-824-A	C BOARD, COMPLETE		73	*A-1296-409-A	A BOARD, COMPLETE	
60	*4-341-778-01	BAND, DEGAUSSING COIL		74	▲1-439-415-11	TRANSFORMER ASSY, FLYBACK	
61	▲1-426-358-11	COIL, DEMAGNETIZATION		75	3-531-576-31	RIVET (DIA. 3), NYLON	
62	4-388-467-01	TERMINAL BOARD, ANTENNA		76	4-308-870-00	CLIP, LEAD WIRE	
63	▲1-536-678-21	ANTENNA BLOCK		77	1-452-032-00	MAGNET, DISK; 10MM $\phi$	
64	▲1-559-396-11	CORD, POWER		78	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM $\phi$	
65	▲4-334-223-02	GROMMET, AC CORD		79	X-4308-815-0	PERMALLOY ASSY, CONVERGENCE	

KV-20TS10  
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ELECTRICAL PARTS LIST

A

## NOTE:

The components identified by shading and mark **A** are critical for safety.  
Replace only with part number specified.

• Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

## RESISTORS

• All resistors are in ohms  
• F : nonflammable

When indicating parts by reference number, please include the board name.

## CAPACITORS

• MF :  $\mu$ F, PF :  $\mu\mu$ F

## COILS

• MMH : mH, UH :  $\mu$ H

• The components identified by **A** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-1296-409-A	A BOARD, COMPLETE	*****		C209	1-123-875-11	ELECT	10MF 20% 50V
*4-341-736-01	BRACKET, FOCUS VR			C211	1-124-477-11	ELECT	47MF 20% 16V
	CONNECTOR			C214	1-123-875-11	ELECT	10MF 20% 50V
A2	*1-506-348-XX	3P PLUG (L)		C215	1-123-875-11	ELECT	10MF 20% 50V
A6	*1-566-054-11	PIN, CONNECTOR 2P		C250	1-124-908-11	ELECT	22MF 20% 50V
A7	*1-560-123-00	PLUG, CONNECTOR (2.5MM) 3P		C251	1-124-667-11	ELECT	10MF 20% 100V
A8	*1-566-058-11	PIN, CONNECTOR 6P		C252	1-106-375-12	MYLAR	0.022MF 10% 100V
A9	*1-508-768-00	6P PLUG		C253	1-124-799-11	ELECT	2.2MF 20% 160V
A10	*1-508-765-00	3P PLUG (M)		C254	1-124-925-11	ELECT	2.2MF 20% 100V
A13	*1-508-767-00	5P PLUG		C291	1-124-908-11	ELECT	22MF 20% 50V
A14	*1-508-766-00	4P PLUG (M)		C292	1-124-667-11	ELECT	10MF 20% 100V
A15B	*1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P		C293	1-106-375-12	MYLAR	0.022MF 10% 100V
A16	*1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)		C294	1-124-799-11	ELECT	2.2MF 20% 160V
A17	*1-566-054-11	PIN, CONNECTOR 2P		C295	1-124-925-11	ELECT	2.2MF 20% 100V
DY1	*1-564-038-00	CONNECTOR PLUG, DY (MINI) 6P		C296	1-124-927-11	ELECT	4.7MF 20% 50V
	CAPACITOR			C298	1-124-499-11	ELECT	1MF 20% 50V
C101	1-123-356-00	ELECT	10MF 20% 16V	C299	1-124-927-11	ELECT	4.7MF 20% 50V
C102	1-124-908-11	ELECT	22MF 20% 50V	C301	1-124-902-00	ELECT	0.47MF 20% 50V
C103	1-124-556-11	ELECT	2200MF 20% 16V	C302	1-102-961-00	CERAMIC	27PF 5% 50V
C104	1-126-101-11	ELECT	100MF 20% 16V	C303	1-126-101-11	ELECT	100MF 20% 16V
C106	1-119-160-00	ELECT	470MF 10V	C305	1-124-902-00	ELECT	0.47MF 20% 50V
C107	1-101-361-00	CERAMIC	150PF 5% 50V	C309	1-124-499-11	ELECT	1MF 20% 50V
C108	1-101-361-00	CERAMIC	150PF 5% 50V	C312	1-102-951-00	CERAMIC	15PF 5% 50V
C109	1-124-927-11	ELECT	4.7MF 20% 50V	C315	1-124-284-00	ELECT	10MF 20% 16V
C110	1-124-927-11	ELECT	4.7MF 20% 50V	C316	1-124-270-11	ELECT	0.47MF 20% 50V
C112	1-126-101-11	ELECT	100MF 20% 16V	C317	1-124-282-00	ELECT	22MF 20% 16V
C113	1-126-101-11	ELECT	100MF 20% 16V	C318	1-102-074-00	CERAMIC	0.001MF 10% 50V
C114	1-123-356-00	ELECT	10MF 20% 16V	C321	1-102-129-00	CERAMIC	0.01MF 10% 50V
C115	1-162-205-31	CERAMIC	18PF 5% 50V	C322	1-123-875-11	ELECT	10MF 20% 50V
C116	1-106-367-00	MYLAR	0.01MF 10% 100V	C330	1-124-120-11	ELECT	220MF 20% 16V
C118	1-106-367-00	MYLAR	0.01MF 10% 100V	C331	1-126-101-11	ELECT	100MF 20% 16V
C120	1-106-383-00	MYLAR	0.047MF 10% 100V	C355	1-102-121-00	CERAMIC	0.0022MF 10% 50V
C121	1-124-477-11	ELECT	47MF 20% 16V	C356	1-124-908-11	ELECT	22MF 20% 50V
C122	1-124-963-11	ELECT	33MF 20% 16V	C360	1-123-875-11	ELECT	10MF 20% 50V
C126	1-124-902-00	ELECT	0.47MF 20% 50V	C361	1-124-902-00	ELECT	0.47MF 20% 50V
C127	1-102-963-00	CERAMIC	33PF 5% 50V	C364	1-124-480-11	ELECT	470MF 20% 25V
C128	1-102-965-00	CERAMIC	39PF 5% 50V	C398	1-102-110-00	CERAMIC	220PF 10% 50V
C132	1-102-965-00	CERAMIC	39PF 5% 50V	C501	1-126-101-11	ELECT	100MF 20% 16V
C133	1-102-964-00	CERAMIC	36PF 5% 50V	C502	1-106-363-00	MYLAR	0.0068MF 10% 100V
C135	1-102-074-00	CERAMIC	0.001MF 10% 50V	C503	1-124-902-00	ELECT	0.47MF 20% 50V
C136	1-124-499-11	ELECT	1MF 20% 50V	C505	1-106-359-00	MYLAR	0.0047MF 10% 100V
C137	1-124-499-11	ELECT	1MF 20% 50V	C507	1-102-110-00	CERAMIC	2.2MF 10% 50V
C139	1-124-477-11	ELECT	47MF 20% 16V	C508	1-101-006-00	CERAMIC	0.047MF 50V
C140	1-102-121-00	CERAMIC	0.0022MF 10% 50V	C509	1-101-006-00	CERAMIC	0.047MF 50V
C141	1-124-925-11	ELECT	2.2MF 20% 50V	C510	1-106-363-00	MYLAR	0.0068MF 10% 100V
C143	1-106-367-00	MYLAR	0.01MF 10% 100V	C511	1-106-379-12	MYLAR	0.033MF 10% 100V
C201	1-126-101-11	ELECT	100MF 20% 16V	C512	1-124-925-11	ELECT	2.2MF 20% 50V
C204	1-102-121-00	CERAMIC	0.0022MF 10% 50V	C513	1-124-499-11	ELECT	1MF 20% 50V
C208	1-123-875-11	ELECT	10MF 20% 50V	C514	1-123-875-11	ELECT	10MF 20% 50V
				C515	1-124-464-11	ELECT	0.22MF 20% 50V
				C516	1-124-477-11	ELECT	47MF 20% 16V
				C518	1-102-125-00	CERAMIC	0.0047MF 10% 50V
				C520	1-124-274-00	ELECT	4.7MF 20% 50V

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A

The components identified by shading and mark **A** are critical for safety.  
Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark	
C522	1-102-822-00	CERAMIC	390PF	5%	50V	D104	1-807-643-11	LED UNIT (LEDU-1)
C530	1-124-277-11	ELECT	4.7MF	20%	25V	D106	1-807-643-11	LED UNIT (LEDU-1)
C531	1-124-908-11	ELECT	22MF	20%	50V	D111	8-719-911-19	DIODE 1SS119
C532	1-124-284-00	ELECT	10MF	20%	16V	D112	8-719-911-19	DIODE 1SS119
C534	1-124-122-11	ELECT	100MF	20%	35V	D113	8-719-911-19	DIODE 1SS119
C535	1-102-030-00	CERAMIC	330PF	10%	500V	D114	8-719-911-19	DIODE 1SS119
C537	1-106-363-00	MYLAR	0.0068MF	10%	100V	D115	8-719-109-74	DIODE RD4.3ES-B1
C538	1-106-375-12	MYLAR	0.022MF	10%	100V	D117	8-719-109-89	DIODE RD5.6ES-B2
C539	1-124-927-11	ELECT	4.7MF	20%	50V	D118	8-719-911-19	DIODE 1SS119
C540	1-124-925-11	ELECT	2.2MF	20%	50V	D119	8-719-911-19	DIODE 1SS119
C541	1-124-910-11	ELECT	47MF	20%	50V	D120	8-719-911-19	DIODE 1SS119
C542	1-123-587-00	ELECT	560MF	10%	25V	D121	8-719-815-55	DIODE 1S1555
C543	1-123-875-11	ELECT	10MF	20%	50V	D122	8-719-911-19	DIODE 1SS119
C544	1-124-925-11	ELECT	2.2MF	20%	50V	D123	8-719-911-19	DIODE 1SS119
C546	1-106-343-00	MYLAR	0.001MF	10%	100V	D128	8-719-911-19	DIODE 1SS119
C548	1-102-212-00	CERAMIC	820PF	10%	500V	D129	8-719-911-19	DIODE 1SS119
C549	1-124-479-11	ELECT	330MF	20%	25V	D151	8-719-911-19	DIODE 1SS119
C550	1-124-902-00	ELECT	0.47MF	20%	50V	D199	8-719-911-19	DIODE 1SS119
C551	1-102-114-00	CERAMIC	470PF	10%	50V	D304	8-719-302-43	DIODE EL1Z
C552	<b>A</b> 1-162-135-51	CERAMIC	560PF	10%	2KV	D350	8-719-911-19	DIODE 1SS119
C553	1-102-030-00	CERAMIC	330PF	10%	500V	D351	8-719-911-19	DIODE 1SS119
C554	<b>A</b> 1-162-134-51	CERAMIC	470PF	10%	2KV	D505	8-719-911-19	DIODE 1SS119
C555	<b>A</b> 1-129-714-51	FILM	0.01MF	10%	630V	D506	8-719-911-19	DIODE 1SS119
C557	1-124-494-00	ELECT	33MF		160V	D508	8-719-911-55	DIODE U05G
C558	1-124-046-00	ELECT	10MF	20%	160V	D511	8-719-918-77	DIODE V19G
C559	1-106-391-12	MYLAR	0.1MF		200V	D513	8-719-945-80	DIODE ERC06-15S
C560	1-136-109-00	FILM	0.68MF	5%	200V	D514	8-719-928-08	DIODE ERD28-08S
	*4-341-751-01	PAWL; C560				D515	8-719-911-55	DIODE U05G
C561	1-124-634-11	ELECT	1MF	20%	250V	D516	8-719-911-55	DIODE U05G
C562	<b>A</b> 1-102-228-91	CERAMIC	470PF	10%	500V	D517	8-719-300-76	DIODE RH-1A
C563	<b>A</b> 1-136-309-11	FILM	0.0075MF	3%	1.4KV	D518	8-719-300-65	DIODE ES1F
	*4-341-751-01	PAWL; C563				D519	8-719-300-65	DIODE ES1F
C564	<b>A</b> 1-136-111-11	FILM	1MF	5%	200V	D597	8-719-921-53	DIODE RGP15G
	*4-341-751-01	PAWL; C564				D601	<b>A</b> 8-719-503-06	DIODE S3WB60Z
C565	<b>A</b> 1-136-312-51	FILM	0.043MF	5%	400V	D602	8-719-911-55	DIODE U05G
	*4-341-751-01	PAWL; C565				D603	8-719-911-55	DIODE U05G
C566	1-124-045-00	ELECT	4.7MF	20%	50V	D604	8-719-911-55	DIODE U05G
C567	<b>A</b> 1-162-318-51	CERAMIC	0.001MF	10%	500V	D605	8-719-109-85	DIODE RD5.1ES-B2
C568	1-106-383-00	MYLAR	0.047MF	10%	100V	D606	8-719-911-55	DIODE U05G
C569	1-106-375-12	MYLAR	0.022MF	99%	200V			
C570	1-162-114-00	CERAMIC	0.0047MF		2KV			
C571	1-108-418-12	MYLAR	0.0056MF	99%	200V			
C572	1-123-875-11	ELECT	10MF	20%	50V			
C573	1-106-228-00	MYLAR	0.22MF	10%	100V			
C590	1-108-422-12	MYLAR	0.012MF	99%	200V			
C592	1-124-556-11	ELECT	2200MF	20%	16V			
C593	1-124-556-11	ELECT	2200MF	20%	16V			
C594	1-124-557-11	ELECT	1000MF	20%	25V			
C595	1-102-212-00	CERAMIC	820PF	10%	500V			
C601	<b>A</b> 1-108-745-52	MYLAR	0.22MF	20%	125V			
C602	<b>A</b> 1-125-457-11	ELECT(BLOCK)	560MF	20%	200V			
C603	1-161-830-00	CERAMIC	0.0047MF	99%	500V			
C604	1-161-830-00	CERAMIC	0.0047MF	99%	500V			
C605	1-123-948-00	ELECT	22MF	20%	250V			
C606	1-124-444-00	ELECT	220MF	20%	10V			
C615	1-124-046-00	ELECT	10MF	20%	160V			
C616	1-124-046-00	ELECT	10MF	20%	160V			
C617	1-124-046-00	ELECT	10MF	20%	160V			
<b>FILTER BLOCK</b>								
CM301	1-464-720-11	FILTER BLOCK, COM (CFB-1)						
<b>DIODE</b>								
D101	8-719-110-78	DIODE RD33ES-B2						
D103	1-807-643-11	LED UNIT (LEDU-1)						
<b>FUSE</b>								
F601	<b>A</b> 1-532-509-11	FUSE, GLASS TUBE 6.3A/125V						
		1-533-190-11						
F602	<b>A</b> 1-532-741-11	FUSE, GLASS TUBE 1.25A/125V						
		*1-533-189-11						
<b>IC</b>								
IC101	8-759-605-39	IC M50439-519SP						
IC102	8-759-803-24	IC CXK1004L						
IC103	8-741-139-80	IC BX1398						
IC201	<b>A</b> 8-749-900-15	IC SI-4102						
IC202	<b>A</b> 8-749-900-15	IC SI-4102						
IC203	8-759-940-88	IC MB3110A						
IC301	8-752-030-69	IC CXA1013S						
IC303	8-759-710-04	IC NJM78M93FD						
IC501	8-759-105-82	IC UPC1378H-P						
		3-701-833-01						
		HEAD, WASHER, TAPPING SCREW; IC501						
IC502	8-759-145-58	IC UPC4558C						
IC601	<b>A</b> 8-749-930-35	IC STR3035						
		4-302-428-00						
		HEAD, WASHER, TAPPING SCREW; IC601						
		4-369-267-01						
		SPACER, MICA; IC601						
MM201	8-749-900-80	IC BX1458						
<b>IF BLOCK</b>								
IF201	1-464-755-11	IF BLOCK (IFE-450)						

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The components identified by shading and mark **A** are critical for safety.  
Replace only with part number specified.

**A**

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>COIL</u>							
L101	1-408-421-00	INDUCTOR 100UH		Q550	8-729-168-82	TRANSISTOR 2SC2688	
L102	1-408-421-00	INDUCTOR 100UH		Q551	8-729-203-80	TRANSISTOR 2SD1555-LB-S1	
L103	1-408-421-00	INDUCTOR 100UH		Q601	8-729-255-12	TRANSISTOR 2SC2551	
L104	1-408-404-00	INDUCTOR 3.9UH		<u>RESISTOR</u>			
L105	1-408-404-00	INDUCTOR 3.9UH		R001	1-249-421-11	CARBON 2.2K 5%	1/4W
L106	1-408-404-00	INDUCTOR 3.9UH		R002	1-249-414-11	CARBON 560 5%	1/4W
L108	1-410-472-41	INDUCTOR 15UH		R003	1-249-414-11	CARBON 560 5%	1/4W
L109	1-410-472-41	INDUCTOR 15UH		R004	1-249-414-11	CARBON 560 5%	1/4W
L203	1-408-408-00	INDUCTOR 8.2UH		R005	1-249-414-11	CARBON 560 5%	1/4W
L301	1-410-421-11	INDUCTOR 15UH		R006	1-249-414-11	CARBON 560 5%	1/4W
L501	1-410-666-31	INDUCTOR 18UH		R007	1-249-414-11	CARBON 560 5%	1/4W
L502	1-408-938-00	INDUCTOR 22UH		R008	1-249-414-11	CARBON 560 5%	1/4W
L503	1-410-669-31	INDUCTOR 33UH		R009	1-249-414-11	CARBON 560 5%	1/4W
L504	1-459-313-00	COIL WITH CORE (HWC)		R010	1-249-414-11	CARBON 560 5%	1/4W
L505	1-459-104-00	COIL, DUST CORE		R011	1-249-414-11	CARBON 560 5%	1/4W
L506	1-407-365-00	COIL, CHOKE		R012	1-249-414-11	CARBON 560 5%	1/4W
L507	1-408-349-00	COIL, CHOKE		R013	1-249-414-11	CARBON 560 5%	1/4W
L508	1-408-239-00	INDUCTOR 4.7MMH		R014	1-249-421-11	CARBON 2.2K 5%	1/4W
L509	<b>A</b> 1-459-390-11	COIL (WITH CORE)		R015	1-249-421-11	CARBON 2.2K 5%	1/4W
L510	<b>A</b> 1-459-626-12	HLC		R016	1-249-421-11	CARBON 2.2K 5%	1/4W
	*4-341-751-01	PAWL; L510		R017	1-247-717-11	CARBON 2.2K 5%	1/4W
L511	1-459-075-00	COIL, DYNAMIC CONVERSION CHOKE		R018	1-249-416-11	CARBON 820 5%	1/4W
L513	1-410-665-31	INDUCTOR 15UH		R019	1-249-429-11	CARBON 10K 5%	1/4W
L514	1-459-407-00	COIL, FERRITE CHOKE		R020	1-249-429-11	CARBON 10K 5%	1/4W
L601	<b>A</b> 1-408-225-21	INDUCTOR 3.3UH		R021	1-249-463-11	CARBON 27K 5%	1/4W
L602	<b>A</b> 1-408-225-21	INDUCTOR 3.3UH		R022	1-249-414-11	CARBON 560 5%	1/4W
L609	1-410-459-11	INDUCTOR 1.2UH		R024	1-249-421-11	CARBON 2.2K 5%	1/4W
				R025	1-249-421-11	CARBON 2.2K 5%	1/4W
				R026	1-249-421-11	CARBON 2.2K 5%	1/4W
<u>NEON LAMP</u>				R027	1-249-421-11	CARBON 2.2K 5%	1/4W
NL501	1-519-108-XX	LAMP, NEON		R028	1-249-423-11	CARBON 3.3K 5%	1/4W
<u>MODULE</u>				R029	1-249-414-11	CARBON 560 5%	1/4W
PM501	1-235-962-11	PROTECTOR MODULE (PM-8)		R030	1-249-414-11	CARBON 560 5%	1/4W
<u>TRANSISTOR</u>				R031	1-249-414-11	CARBON 560 5%	1/4W
Q101	8-729-178-54	TRANSISTOR 2SC2785		R032	1-249-414-11	CARBON 560 5%	1/4W
Q103	8-729-178-54	TRANSISTOR 2SC2785		R034	1-249-426-11	CARBON 5.6K 5%	1/4W
Q106	8-729-117-54	TRANSISTOR 2SA1175		R035	1-249-417-11	CARBON 1K 5%	1/4W
Q107	8-729-117-54	TRANSISTOR 2SA1175		R036	1-249-416-11	CARBON 820 5%	1/4W
Q108	8-729-178-54	TRANSISTOR 2SC2785		R037	1-249-416-11	CARBON 820 5%	1/4W
Q109	8-729-117-54	TRANSISTOR 2SA1175		R040	1-249-460-11	CARBON 15K 5%	1/4W
Q110	8-729-178-54	TRANSISTOR 2SC2785		R044	1-249-414-11	CARBON 560 5%	1/4W
Q112	8-729-378-91	TRANSISTOR 2SD789		R101	1-249-426-11	CARBON 5.6K 5%	1/4W
Q113	8-729-117-54	TRANSISTOR 2SA1175		R102	1-247-713-11	CARBON 1K 5%	1/4W
Q114	8-729-178-54	TRANSISTOR 2SC2785		R103	1-215-923-00	METAL OXIDE 10K 5%	3W F
Q115	8-729-178-54	TRANSISTOR 2SC2785		R105	1-249-465-11	CARBON 47K 5%	1/4W
Q116	8-729-178-54	TRANSISTOR 2SC2785		R107	1-249-437-11	CARBON 47K 5%	1/4W
Q119	8-729-178-54	TRANSISTOR 2SC2785		R108	1-247-721-11	CARBON 4.7K 5%	1/4W
Q120	8-729-178-54	TRANSISTOR 2SC2785		R109	1-249-425-11	CARBON 4.7K 5%	1/4W
Q121	8-729-178-54	TRANSISTOR 2SC2785		R113	1-249-417-11	CARBON 1K 5%	1/4W
Q122	8-729-178-54	TRANSISTOR 2SC2785		R115	1-249-421-11	CARBON 2.2K 5%	1/4W
Q203	8-729-378-84	TRANSISTOR 2SD788		R116	1-249-421-11	CARBON 2.2K 5%	1/4W
Q205	8-729-178-54	TRANSISTOR 2SC2785		R117	1-249-421-11	CARBON 2.2K 5%	1/4W
Q301	8-729-178-54	TRANSISTOR 2SC2785		R118	1-249-433-11	CARBON 22K 5%	1/4W
Q302	8-729-178-54	TRANSISTOR 2SC2785		R119	1-247-713-11	CARBON 1K 5%	1/4W
Q303	8-729-178-54	TRANSISTOR 2SC2785		R120	1-249-437-11	CARBON 47K 5%	1/4W
Q304	8-729-178-54	TRANSISTOR 2SC2785		R121	1-249-434-11	CARBON 27K 5%	1/4W
Q305	8-729-117-54	TRANSISTOR 2SA1175		R124	1-249-417-11	CARBON 1K 5%	1/4W
Q354	8-729-117-54	TRANSISTOR 2SA1175		R125	1-249-417-11	CARBON 1K 5%	1/4W
Q371	8-729-178-54	TRANSISTOR 2SC2785		R126	1-249-429-11	CARBON 10K 5%	1/4W
Q398	8-729-178-54	TRANSISTOR 2SC2785		R128	1-249-429-11	CARBON 10K 5%	1/4W
Q501	8-729-107-26	TRANSISTOR 2SD1585-K		R131	1-249-412-11	CARBON 390 5%	1/4W
Q502	8-729-117-54	TRANSISTOR 2SA1175		R132	1-249-412-11	CARBON 390 5%	1/4W
				R133	1-249-429-11	CARBON 10K 5%	1/4W
				R134	1-249-413-11	CARBON 470 5%	1/4W



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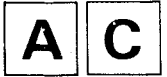
A

- The components identified by **M** in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R135	1-249-417-11	CARBON	1K 5% 1/4W	R302	1-249-438-11	CARBON	56K 5% 1/4W
R136	1-249-405-11	CARBON	100 5% 1/4W	R303	1-249-429-11	CARBON	10K 5% 1/4W
R139	1-249-417-11	CARBON	1K 5% 1/4W	R304	1-215-479-00	CARBON	270K 5% 1/4W
R140	1-249-417-11	CARBON	1K 5% 1/4W	R305	1-249-468-11	CARBON	82K 5% 1/4W
R141	1-249-417-11	CARBON	1K 5% 1/4W	R306	1-249-437-11	CARBON	47K 5% 1/4W
R142	1-249-429-11	CARBON	10K 5% 1/4W	R307	1-249-429-11	CARBON	10K 5% 1/4W
R143	1-249-429-11	CARBON	10K 5% 1/4W	R308	1-249-411-11	CARBON	330 5% 1/4W
R146	1-249-417-11	CARBON	1K 5% 1/4W	R309	1-249-411-11	CARBON	330 5% 1/4W
R147	1-249-416-11	CARBON	820 5% 1/4W	R310	1-249-411-11	CARBON	330 5% 1/4W
R148	1-249-432-11	CARBON	18K 5% 1/4W	R313	1-249-460-11	CARBON	15K 5% 1/4W
R149	1-249-423-11	CARBON	3.3K 5% 1/4W	R315	1-249-417-11	CARBON	1K 5% 1/4W
R150	1-249-437-11	CARBON	47K 5% 1/4W	R316	1-249-411-11	CARBON	330 5% 1/4W
R151	1-249-429-11	CARBON	10K 5% 1/4W	R318	1-249-417-11	CARBON	1K 5% 1/4W
R152	1-249-433-11	CARBON	22K 5% 1/4W	R319	1-249-417-11	CARBON	1K 5% 1/4W
R153	1-249-428-11	CARBON	8.2K 5% 1/4W	R320	1-249-417-11	CARBON	1K 5% 1/4W
R154	1-247-895-00	CARBON	470K 5% 1/4W	R323	1-249-427-11	CARBON	6.8K 5% 1/4W
R155	1-249-439-11	CARBON	68K 5% 1/4W	R328	1-249-414-11	CARBON	560 5% 1/4W
R156	1-249-424-11	CARBON	3.9K 5% 1/4W	R329	1-249-441-11	CARBON	100K 5% 1/4W
R157	1-247-704-11	CARBON	220 5% 1/4W	R330	1-249-426-11	CARBON	5.6K 5% 1/4W
R158	1-247-895-00	CARBON	470K 5% 1/4W	R333	1-249-429-11	CARBON	10K 5% 1/4W
R159	1-247-704-11	CARBON	220 5% 1/4W	R334	1-249-413-11	CARBON	470 5% 1/4W
R160	1-249-439-11	CARBON	68K 5% 1/4W	R335	1-249-425-11	CARBON	4.7K 5% 1/4W
R161	1-249-424-11	CARBON	3.9K 5% 1/4W	R336	1-249-425-11	CARBON	4.7K 5% 1/4W
R166	1-249-429-11	CARBON	10K 5% 1/4W	R340	1-249-430-11	CARBON	12K 5% 1/4W
R167	1-215-493-00	CARBON	1M 5% 1/4W	R341	1-247-717-11	CARBON	2.2K 5% 1/4W
R170	1-249-415-11	CARBON	680 5% 1/4W	R342	1-249-421-11	CARBON	2.2K 5% 1/4W
R171	1-249-423-11	CARBON	3.3K 5% 1/4W	R350	1-249-437-11	CARBON	47K 5% 1/4W
R172	1-249-434-11	CARBON	27K 5% 1/4W	R352	1-215-491-00	CARBON	820K 5% 1/4W
R174	1-215-479-00	CARBON	270K 5% 1/4W	R353	1-249-429-11	CARBON	10K 5% 1/4W
R175	1-249-469-11	CARBON	100K 5% 1/4W	R358	1-249-405-11	CARBON	100 5% 1/4W
R176	1-249-441-11	CARBON	100K 5% 1/4W	R359	1-249-431-11	CARBON	15K 5% 1/4W
R180	1-249-426-11	CARBON	5.6K 5% 1/4W	R361	1-249-429-11	CARBON	10K 5% 1/4W
R181	1-249-416-11	CARBON	820 5% 1/4W	R362	1-216-449-11	METAL OXIDE	56 5% 2W F
R182	1-249-415-11	CARBON	680 5% 1/4W	R366	1-249-430-11	CARBON	12K 5% 1/4W
R185	1-249-429-11	CARBON	10K 5% 1/4W	R367	1-249-436-11	CARBON	39K 5% 1/4W
R204	1-249-435-11	CARBON	33K 5% 1/4W	R368	1-249-417-11	CARBON	1K 5% 1/4W
R206	1-249-417-11	CARBON	1K 5% 1/4W	R369	1-247-713-11	CARBON	1K 5% 1/4W
R207	1-249-435-11	CARBON	33K 5% 1/4W	R371	1-249-429-11	CARBON	10K 5% 1/4W
R208	1-249-425-11	CARBON	4.7K 5% 1/4W	R375	1-249-434-11	CARBON	27K 5% 1/4W
R211	1-249-411-11	CARBON	330 5% 1/4W	R378	1-215-920-11	METAL OXIDE	3.3K 5% 3W F
R213	1-249-432-11	CARBON	18K 5% 1/4W	R379	1-215-920-11	METAL OXIDE	3.3K 5% 3W F
R214	1-249-432-11	CARBON	18K 5% 1/4W	R380	1-249-419-11	CARBON	1.5K 5% 1/4W F
R217	1-249-417-11	CARBON	1K 5% 1/4W	R381 <b>A</b>	CARBON		1/4W
R221	1-249-413-11	CARBON	470 5% 1/4W	R382	1-202-830-00	SOLID	10K 10% 1/2W
R231	1-249-405-11	CARBON	100 5% 1/4W	R383 <b>A</b>	CARBON		1/4W
R232	1-249-411-11	CARBON	330 5% 1/4W	R397	1-249-434-11	CARBON	27K 5% 1/4W
R233	1-249-411-11	CARBON	330 5% 1/4W	R398	1-249-423-11	CARBON	3.3K 5% 1/4W
R234	1-249-411-11	CARBON	330 5% 1/4W	R501	1-215-920-11	METAL OXIDE	3.3K 5% 3W F
R240	1-249-425-11	CARBON	4.7K 5% 1/4W	R502	1-216-484-00	METAL OXIDE	3.9K 5% 3W F
R241	1-249-441-11	CARBON	100K 5% 1/4W	R503	1-249-408-11	CARBON	180 5% 1/4W
R250	1-249-412-11	CARBON	390 5% 1/4W F	R504	1-249-411-11	CARBON	330 5% 1/4W
R251 <b>A</b>	1-246-987-11	CARBON	47 5% 1/8W F	R505	1-214-780-00	METAL	130K 1% 1/4W
R252	1-249-459-11	CARBON	12K 5% 1/4W	R506	1-247-702-11	CARBON	150 5% 1/4W
R253	1-249-434-11	CARBON	27K 5% 1/4W	R507	1-249-426-11	CARBON	5.6K 5% 1/4W
R290	1-249-412-11	CARBON	390 5% 1/4W F	R508	1-249-465-11	CARBON	47K 5% 1/4W
R291	1-249-459-11	CARBON	12K 5% 1/4W	R509	1-249-463-11	CARBON	27K 5% 1/4W
R292 <b>A</b>	1-246-987-11	CARBON	47 5% 1/8W F	R510	1-249-422-11	CARBON	2.7K 5% 1/4W
R293	1-249-434-11	CARBON	27K 5% 1/4W	R511	1-202-727-00	SOLID	4.7M 10% 1/2W
R294	1-249-418-11	CARBON	1.2K 5% 1/4W	R512	1-249-411-11	CARBON	330 5% 1/4W
R295	1-249-429-11	CARBON	10K 5% 1/4W	R513	1-215-472-00	METAL	130K 1% 1/6W
R296	1-247-725-11	CARBON	10K 5% 1/4W	R514	1-214-765-00	METAL	33K 1% 1/4W
R297	1-249-405-11	CARBON	100 5% 1/4W F	R515	1-249-427-11	CARBON	6.8K 5% 1/4W
R298	1-249-417-11	CARBON	1K 5% 1/4W	R516	1-249-428-11	CARBON	8.2K 5% 1/4W
R299	1-249-418-11	CARBON	1.2K 5% 1/4W	R517	1-247-713-11	CARBON	1K 5% 1/4W
R301	1-215-471-00	METAL	120K 1% 1/6W	R519	1-249-424-11	CARBON	3.9K 5% 1/4W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R521	1-247-887-00	CARBON	220K 5% 1/4W	RV305	1-230-935-11	RES, VAR, CARBON 20KX4	
R523	1-247-713-11	CARBON	1K 5% 1/4W	RV307	1-228-989-00	RES, ADJ, METAL GLAZE 470	
R524	1-249-417-11	CARBON	1K 5% 1/4W	RV501	1-228-728-00	RES, ADJ, CERAMIC CARBON 100K	
R525	1-249-419-11	CARBON	1.5K 5% 1/4W	RV502	1-228-997-00	RES, ADJ, CARBON 100K	
R526	1-249-747-11	CARBON	1.5M 5% 1/4W	RV505	1-228-995-00	RES, ADJ, CARBON 22K	
R527	1-249-748-11	CARBON	1.8M 5% 1/4W	RV506	1-228-996-00	RES, ADJ, CARBON 47K	
R530	1-249-433-11	CARBON	22K 5% 1/4W	RV507	1-230-625-11	RES, ADJ, CARBON 330	
R532	1-249-466-11	CARBON	56K 5% 1/4W	RV508	1-228-990-00	RES, ADJ, CARBON 1K	
R535	1-249-419-11	CARBON	1.5K 5% 1/4W				
R536	1-249-426-11	CARBON	5.6K 5% 1/4W				
R539	1-215-373-31	METAL	10 1% 1/6W				
R540	1-247-703-11	CARBON	180 5% 1/4W				
R541	1-247-723-11	CARBON	6.8K 5% 1/4W				
R542	1-247-719-11	CARBON	3.3K 5% 1/4W				
R543	1-249-430-11	CARBON	12K 5% 1/4W				
R544	1-249-424-11	CARBON	3.9K 5% 1/4W				
R545	1-247-714-11	CARBON	1.2K 5% 1/4W				
R549	1-249-415-11	CARBON	680 5% 1/4W				
R550	1-249-429-11	CARBON	10K 5% 1/4W				
■ R551 ▲		CARBON	1/4W				
R553	1-249-413-11	CARBON	470 5% 1/4W				
R554	1-249-427-11	CARBON	6.8K 5% 1/4W				
■ R555 ▲		CARBON	1/4W				
R556	1-216-352-11	METAL OXIDE	1.8 5% 1W				
R558	1-249-410-11	CARBON	270 5% 1/4W				
R559	1-249-415-11	CARBON	680 5% 1/4W				
R560	1-247-719-11	CARBON	3.3K 5% 1/4W				
R563	1-249-464-11	CARBON	39K 5% 1/4W				
R565	1-249-441-11	CARBON	100K 5% 1/4W				
R566	1-246-535-00	CARBON	390K 5% 1/4W				
R567 ▲	1-216-353-51	METAL OXIDE	2.2 5% 1W				
R570	1-216-431-11	METAL OXIDE	560 5% 1W				
R572	1-249-423-11	CARBON	3.3K 5% 1/4W				
R573	1-247-764-11	CARBON	10K 5% 1/2W				
R574	1-216-345-11	METAL OXIDE	0.47 5% 1W				
R577	1-216-451-11	METAL OXIDE	120 5% 2W				
R579 ▲	1-249-415-51	CARBON	680 5% 1/4W				
R580	1-216-428-00	METAL OXIDE	180 5% 1W				
R581	1-247-708-11	CARBON	470 5% 1/4W				
R582	1-215-863-11	METAL OXIDE	100 5% 1W				
R583	1-215-863-11	METAL OXIDE	100 5% 1W				
R586	1-247-746-11	CARBON	390 5% 1/2W				
R587 ▲	1-215-899-51	METAL OXIDE	15K 5% 2W				
R589	1-249-441-11	CARBON	100K 5% 1/4W				
R590 ▲	1-216-445-51	METAL OXIDE	12 5% 2W				
R591	1-216-345-11	METAL OXIDE	0.47 5% 1W				
R601 ▲	1-202-719-51	SOLID	1M 10% 1/2W				
R602 ▲	1-205-792-11	WIREWOUND	1.8 5% 10W				
R603	1-249-421-11	CARBON	2.2K 5% 1/4W				
R605 ▲	1-205-691-11	WIREWOUND	150 5% 20W				
R610 ▲	1-217-224-11	WIREWOUND	100 10% 2W				
R611	1-215-872-11	METAL OXIDE	3.3K 5% 1W				
R612	1-205-744-11	WIREWOUND	4.7K 5% 20W				
R613	1-249-437-11	CARBON	47K 5% 1/4W				
R614	1-247-721-11	CARBON	4.7K 5% 1/4W				
R615	1-216-463-00	METAL OXIDE	12K 5% 2W				
R616	1-247-719-11	CARBON	3.3K 5% 1/4W				
R617	1-249-401-11	CARBON	47 5% 1/4W				
R618	1-247-895-00	CARBON	470K 5% 1/4W				
<u>VARIABLE RESISTOR</u>							
RV201	1-228-994-00	RES, ADJ, CARBON 10K					
RV299	1-228-994-00	RES, ADJ, CARBON 10K					
RV302	1-230-935-11	RES, VAR, CARBON 20KX4					
RV303	1-230-935-11	RES, VAR, CARBON 20KX4					
RV304	1-230-935-11	RES, VAR, CARBON 20KX4					
RV305	1-230-935-11	RES, VAR, CARBON 20KX4					
RV307	1-228-989-00	RES, ADJ, METAL GLAZE 470					
RV501	1-228-728-00	RES, ADJ, CERAMIC CARBON 100K					
RV502	1-228-997-00	RES, ADJ, CARBON 100K					
RV505	1-228-995-00	RES, ADJ, CARBON 22K					
RV506	1-228-996-00	RES, ADJ, CARBON 47K					
RV507	1-230-625-11	RES, ADJ, CARBON 330					
RV508	1-228-990-00	RES, ADJ, CARBON 1K					
<u>RELAY</u>							
RY601 ▲	1-515-573-11	RELAY, POWER					
<u>SWITCH</u>							
S101 ▲	1-554-804-12	SWITCH, PUSH (1 KEY)					
S102	1-570-577-11	SWITCH, PUSH					
S103	1-570-240-11	SWITCH, ROTARY					
S106	1-554-804-11	SWITCH, PUSH (1 KEY)					
S107	1-554-804-11	SWITCH, PUSH (1 KEY)					
S108	1-570-577-11	SWITCH, PUSH					
S201	1-570-240-11	SWITCH, ROTARY					
S501	1-554-186-00	SWITCH, LEVER					
<u>SPARK GAP</u>							
SG501	1-519-063-XX	DISCHARGING GAP					
<u>TRANSFORMER</u>							
T101	1-404-538-11	COIL					
T201	1-427-479-00	TRANSFORMER (SOT)					
T299	1-427-479-00	TRANSFORMER (SOT)					
T501	1-437-090-00	HDT					
T601 ▲	1-421-357-31	TRANSFORMER, LINE FILTER					
<u>THERMISTOR</u>							
THP601 ▲	1-808-081-11	THERMISTOR, POSITIVE					
<u>TUNER</u>							
TU101 ▲	1-463-771-11	TUNER, ET (BTP-201A)					
<u>CRYSTAL</u>							
X101	1-567-192-11	OSCILLATOR, CERAMIC					
X301	1-567-505-11	OSCILLATOR, CRYSTAL					
*****							
	*A-1330-824-A	C BOARD, COMPLETE					
*****							
	▲ 1-526-798-42	SOCKET, CRT					
	*4-379-160-01	COVER (REAR LID), CV					
	*4-379-167-01	COVER (MAIN), CV					
<u>CONNECTOR</u>							
C1	*1-506-371-00	2P PLUG (L)					
C2	*1-508-768-00	6P PLUG					
C3	*1-566-058-11	PIN, CONNECTOR 6P					
<u>CAPACITOR</u>							
C701	1-130-338-11	FILM	0.01MF 10%	63V			
C702	1-162-116-00	CERAMIC	680PF 10%	21V			
C704	1-124-915-11	ELECT	10MF 20%	63V			
C705	1-102-116-00	CERAMIC	680PF 10%	50V			
C706	1-102-116-00	CERAMIC	680PF 10%	50V			
C707	1-102-116-00	CERAMIC	680PF 10%	50V			
C708	1-102-110-00	CERAMIC	220PF 10%	50V			
C709	1-102-110-00	CERAMIC	220PF 10%	50V			
C710	1-102-110-00	CERAMIC	220PF 10%	50V			

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**C**

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C722	1-162-622-11	CERAMIC 330PF	10% 6.3KV			MISCELLANEOUS *****	
		<u>DIODE</u>					
D701	8-719-911-19	DIODE 1SS119		A.1-238-043-11	RESISTOR ASSY, HIGH-VOLTAGE		
D702	8-719-911-19	DIODE 1SS119		A.1-426-358-11	COIL, DEMAGNETIZATION		
D703	8-719-911-19	DIODE 1SS119		A.1-451-268-11	DEFLECTION YOKE (SY-153C)		
		<u>COIL</u>		1-452-032-00	MAGNET, DISK; 10MMø		
L701	1-408-417-00	INDUCTOR 47UH		1-452-094-00	MAGNET, ROTATABLE DISK; 15MMø		
		<u>TRANSISTOR</u>		1-452-277-00	MAGNET, BMC		
Q701	8-729-178-54	TRANSISTOR 2SC2785		A.1-536-678-21	ANTENNA BLOCK		
Q702	8-729-326-11	TRANSISTOR 2SC2611		A.1-559-396-11	CORD, POWER		
Q703	8-729-178-54	TRANSISTOR 2SC2785					
Q704	8-729-326-11	TRANSISTOR 2SC2611		SP901	1-503-918-11	SPEAKER	
Q705	8-729-178-54	TRANSISTOR 2SC2785		SP902	1-503-918-11	SPEAKER	
		<u>RESISTOR</u>		T504	A.1-439-415-11	TRANSFORMER ASSY, FLYBACK	
R701	1-202-838-00	SOLID 100K 10%	1/2W	V901	A.8-738-752-05	PICTURE TUBE (A51JUH50X)	
R702	1-216-394-00	METAL OXIDE 2.7 5%	3W F	*****			
R703	1-202-842-11	SOLID 220K 10%	1/2W			ACCESSORIES AND PACKING MATERIALS	
R704	1-202-846-00	SOLID 470K 10%	1/2W			*****	
R705	1-202-837-00	SOLID 82K 10%	1/2W				
R706	1-202-549-00	SOLID 100 10%	1/2W				
R707	1-202-842-11	SOLID 220K 10%	1/2W				
R708	1-202-824-00	SOLID 3.3K 10%	1/2W				
R709	1-202-824-00	SOLID 3.3K 10%	1/2W				
R710	1-247-700-11	SOLID 100 5%	1/4W				
R711	1-249-411-11	CARBON 330 5%	1/4W				
R712	1-249-411-11	CARBON 330 5%	1/4W				
R713	1-202-824-00	SOLID 3.3K 10%	1/2W				
R714	1-249-421-11	CARBON 2.2K 5%	1/4W				
R715	1-249-422-11	CARBON 2.7K 5%	1/4W				
R716	1-249-414-11	CARBON 560 5%	1/4W				
R718	1-249-405-11	CARBON 100 5%	1/4W				
R719	1-249-420-11	CARBON 1.8K 5%	1/4W				
R720	1-249-414-11	CARBON 560 5%	1/4W				
R722	1-215-899-11	METAL OXIDE 15K 5%	2W F				
R723	1-249-413-11	CARBON 470 5%	1/4W				
R725	1-249-421-11	CARBON 2.2K 5%	1/4W				
R726	1-249-405-11	CARBON 100 5%	1/4W				
R727	1-249-419-11	CARBON 1.5K 5%	1/4W				
R728	1-249-413-11	CARBON 470 5%	1/4W				
R729	1-249-411-11	CARBON 330 5%	1/4W				
R730	1-215-899-11	METAL OXIDE 15K 5%	2W F				
R732	1-215-408-00	CARBON 300 5%	1/4W				
R733	1-249-422-11	CARBON 2.7K 5%	1/4W				
R734	1-249-421-11	CARBON 2.2K 5%	1/4W				
R735	1-249-405-11	CARBON 100 5%	1/4W				
R737	1-215-899-11	METAL OXIDE 15K 5%	2W F				
R738	1-202-848-00	SOLID 680K 10%	1/2W				
R739	1-202-838-00	SOLID 100K 10%	1/2W				
R740	1-202-842-11	SOLID 220K 10%	1/2W				
		<u>VARIABLE RESISTOR</u>					
RV701	A.1-230-619-11	RES, ADJ, METAL GLAZE 110M					
RV702	1-228-993-00	RES, ADJ, CARBON 4.7K					
RV703	1-228-991-00	RES, ADJ, CARBON 2.2K					
RV704	1-228-993-00	RES, ADJ, CARBON 4.7K					
RV705	1-228-991-00	RES, ADJ, CARBON 2.2K					
RV706	1-228-993-00	RES, ADJ, CARBON 4.7K					
RV707	1-228-995-00	RES, ADJ, CARBON 22K					
RV708	1-230-641-21	RES, ADJ, METAL GLAZE 2.2M					

Part No.	Description	Remark
A-1470-826-A	COMMANDER ASSY (RM-758)	
1-501-284-00	ANTENNA, TELESCOPIC	
1-562-443-11	CONNECTOR, ANTENNA	
*4-377-015-01	BAG, PROTECTION	
*4-388-956-01	CUSHION (UPPER) (ASSY)	
*4-388-957-01	CUSHION (LOWER) (ASSY)	
*4-388-958-01	INDIVIDUAL CARTON (FOR SDP)	
*4-388-980-01	INDIVIDUAL CARTON (FOR VTM)	
4-482-542-21	MANUAL, INSTRUCTION	

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TV Group

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# KV-20TS10

## RM-753

# SONY® SERVICE MANUAL

**US Model**  
Serial No. 7,003,001 and later  
Chassis No. SCC-A05Y-A

## SUPPLEMENT - 1

File this supplement with the service manual.

### [INTRODUCTION]

1. Change information of BEZEL ASSY and COVER ASSY REAR.
2. Countermeasure at the hook of COVER ASSY, REAR bent. (Effective model; Serial No. up to 7,003,000)

### SECTION 7 EXPLODED VIEWS

**NOTE:**

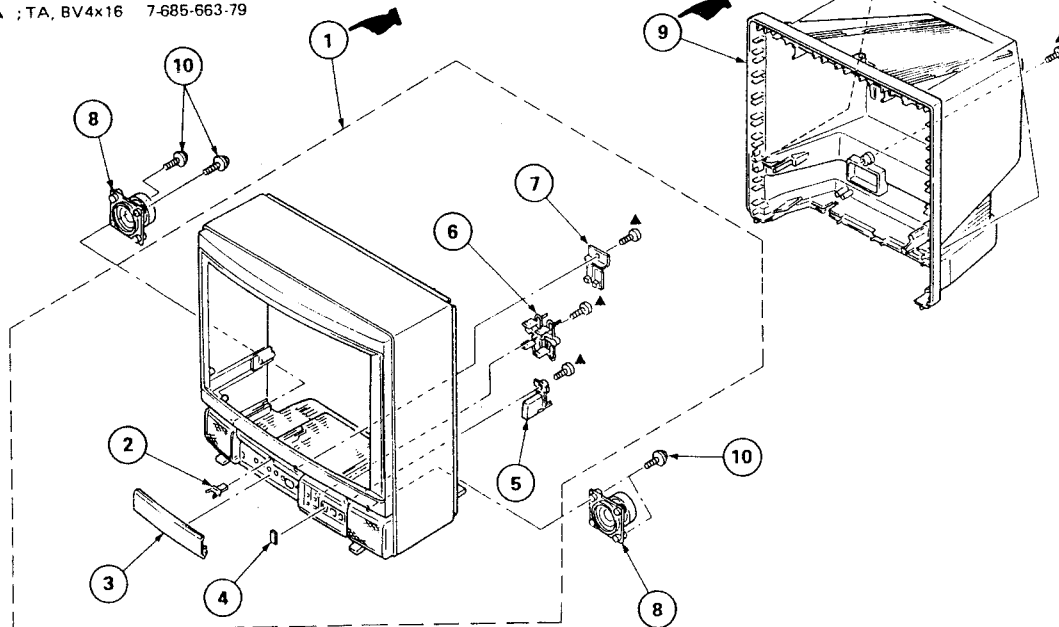
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

#### 7-1. BEZEL

$\Delta$  ; TA, BV4x16 7-685-663-79



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	X-4388-417-5	BEZEL ASSY (FOR BLACK)	2-7	5	4-388-460-01	BUTTON, POWER	
	X-4388-417-6	BEZEL ASSY (FOR TRAD OAK)	2-7	6	4-388-465-01	BUTTON, MULTI	
2	4-386-710-01	CATCHER, PUSH		7	4-341-738-01	BUTTON, PICTURE	
3	4-388-469-01	DOOR, CONTROL		8	1-503-918-11	SPEAKER	
4	4-388-459-01	PLATE, TRANSPARENT		9	X-4388-419-2	COVER ASSY, REAR	
				10	4-388-477-01	SCREW (3x16), TAPPING	



## V-20TS10

RM-758

### What to do if the hook for installing the back cover is bent

**Note:** Follow the procedure in the numerical over given when the hook is bent.

- ② Cut the bent hook on the holder from the portion indicated with diagonal lines in the figure.  
(It does not matter if 2mm or less is left sticking out.)
- ③ Open a 3.5mm diameter hole in the holder to line up with the position of the hole in the back cover.

